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Volume 22 Number 1 January, 2015

Editorial comments.....v

Research papers

Factors Associated With Adolescent Malnutrition Among Nigerian Students
A.A.Abdulkarim, A.T.Otuneye, P.Ahmed, D.R.Shattima 1

Prevalence And Risk Factors For Human Pappiloma Virus Infection Among HIV Positive
Pregnant Women In Urban Slums Of Osogbo, Nigeria.
W.O. Adebimpe, E.O. Akanni 8

Diagnosis And Outcome Of Chronic Subdural Haematomas In Ilorin
A.S. Yusuf, I.O. Oyinloye, N.A Adeleke, J.O Bello, M.F. Adeyemi, T.O. Odebode14

A modified Single-track Mattress Suture Technique For Skin Closure
A. A. Ajape, S.A. Kuranga, A. Babata, M.M.Kura.....18

Case Reports

Anaesthetic Challenges In Gunshot Injury To The Neck
M.B. Adegboye, K.A. Adegboye22

Mayer – Rokitansky Syndrome Type 1 With Karyotype XY Variant: A Case Study
L.O.Omokanye, A.W.O.Olatinwo, K.A.Durowade, A.A.Panti, A.G.Salaudeen, E.O.Adewara. 25

EDITORIAL COMMENTS

Welcome to the July 2015 edition of Tropical Journal of Health Sciences. The articles in this edition cover various disciplines in medical practice.

The first article determined factors associated with malnutrition among adolescents in senior secondary schools in Nigeria. It identified some factors associated with malnutrition among adolescents that can be used in planning health promotions and prevention programmes. It also shows the need for wider collection of data on factors associated with malnutrition in our environment as variations clearly occur.

The second article discussed Human Pappiloma Virus (HPV) infection which is a disease of global public health importance, culminating into a high risk of cervical cancer. It accessed the prevalence and risk factor for HPV among HIV positive pregnant women in Osogbo, Nigeria. The findings show that poor awareness, low prevalence of HPV, some level of high sexual risk behavior and no record of HPV vaccination. In conclusion, introduction of HPV awareness education into high schools' curriculum will assist in reducing the spread of HPV and other sexuality transmitted infection.

The third article described the management and outcomes of Chronic Subdural Haematomas (CSDH) cases using single burr-hole craniostomy under local anaesthesia. CSDH is a common neurosurgical problem involving a vicious circle of bleeding from neocapillaries of membranes and fibrinolytic activities. Single burr-hole craniostomy with drainage under local anaesthesia can be used to efficiently evacuate CSDH with high good recovery rate and less morbidity

The fourth article described a technical modification of mattress suture type of skin closure technique and its observable outcome among urological patients that were operated in our institutions. It was concluded after the operations that the preliminary observation of the outcome of this method of skin closure may support its place in the surgeon's armamentarium.

Also discussed is a case of gunshot injury to the neck of a 25 year old man who was rushed to the University of Ilorin Teaching Hospital. He gradually regained speech due to speech therapist rehabilitation. Timing is essential in the management of this patient. In conclusion, our case demonstrated one of the possible ways of managing penetrating neck injury in a low resource country.

Last is a case of 24 year old lady with primary ammenorrhea, vaginal examination revealed a blind ending 3cm vaginal with no cervix palpable. USS and laparoscopy showed no uterus with well formed ovaries with karyotype 46 XY (male). Transvaginal 2D Ultrasonography revealed absence of uterus with suspected pelvic kidney and normal ovaries bilaterally with evidence of follicular activities. Diagnostic laparoscopy revealed a clean pelvis with grossly normal ovaries bilaterally but no uterus. Kidneys are in normal position (retroperitoneal). Clinical diagnosis of Mayer – rokitansky – kuster –Hauser (MRKH) syndrome (as obtained in the present case) based on above findings. Patient was discharged home same day after diagnostic laparoscopy and counseled on the operative findings and the need for vaginoplasty and Assisted Reproductive Technology (ART) with surrogate mother.

Prof AB Okesina
Editor in Chief

Factors Associated With Adolescent Malnutrition Among Nigerian Students

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Abstract

This study determined the factors associated with malnutrition among adolescents in senior secondary schools in The Abuja Municipal area council. This was a cross-sectional study conducted among adolescents (10-19 years) in secondary schools. A multistage sampling technique was employed to select a total of 1700 students from selected schools. All schools in the Abuja Municipal Area Council (AMAC) were stratified into urban and rural schools. Eight schools were selected by balloting from a list of schools obtained from the Education centre. A school was selected from each of the four major districts of AMAC and four schools were selected from the rural making a total of 8 schools. Although the consent of the school authorities were obtained, individual subject also consented to the study before being enrolled. The study excluded those adolescents who were physically challenged thus limiting physical activity. Socio-demographic information was obtained using an interviewer administered questionnaire. Subject's height and weight was taken using the floor-type height (H) and weight (W) measuring scale model ZT-120 using Massachusetts department of public health protocol. The nutritional status was determined using the formula: $BMI = W/H^2$, where W =weight (in kilograms) and H= height (in meters). The age and sex specific height and BMI percentile for each subject was determined using the 2007 WHO Height and BMI growth charts for age 5-19years. The students were then classified into one of the following categories using previously used standards: normal, stunted, wasted, overweight or obese. Data was analyzed using SPSS version 17 statistical package. A regression analysis of all investigated factors was done to determine those with significant association to malnutrition.

The mean age was 14.43 ± 1.94 years; male 688, female 862, M:F ratio 1.1.3. Mean BMI, weight and height were $20.31 \pm 3.07 \text{ kg/m}^2$, $51.07 \pm 10.80 \text{ kg}$, and $157.88 \pm 9.33 \text{ cm}$ respectively. The prevalence of overweight, stunting, obesity and wasting was documented as 13.2% (205/1550), 11.3% (175/1550), 2.6% (41/1550) and 1.7% (27/1550) respectively. Low social class, male gender, hawking after school and rural setting were associated with stunting ($p < 0.05$) and female gender and watching Television for more than 3 hours daily were associated with overweight ($p < 0.05$). Obesity occurred more in urban areas.

Key words: Adolescent, malnutrition, associated factors

Introduction

Malnutrition has been reported in epidemic proportions among adolescents in developing and developed countries.^{1,2} The prevalence and pattern of malnutrition- wasting, stunting, and overweight and obesity- however vary among countries and within regions in a country³⁻⁶. Global data is increasingly available on factors that are associated with the nutritional status of adolescents, and rural/ urban differences in the type and prevalence of malnutrition have been documented.⁵⁻⁸ Furthermore, socioeconomic status, lifestyles including alcohol and tobacco consumption, eating habits and level of physical activity in an individual have been found to be associated with malnutrition among adolescents.^{5,7-10} Adolescent over-nutrition is associated with non-communicable diseases such as hypertension, diabetes mellitus and sleep apnoea among others. In adulthood, there is a higher burden of Type II Diabetes Mellitus (DM), hypertensive heart diseases, coronary heart diseases, colonic cancers and other disorders in obese and overweight individuals.^{11,12} Under-nutrition affects the final physical height, body weight and cognitive ability of an adolescent.^{2,6,11,12} Malnutrition in childhood through adolescence may progress to adult life. In addition, there may be factors that influence malnutrition that start in childhood or adolescence and persist into adulthood, thus the potential to increase the burden of non-communicable diseases (NCDs) among the population.

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The importance of understanding the factors associated

with the epidemic of malnutrition in any population is important in order to institute measures to reduce and/or reverse the trend. Different countries and regions have a wide variation of factors associated with malnutrition. Also, there are many changing factors in our society. These include proliferation of fast food outlets, the technological advancements and increasing use of blackberry and video games by children and adolescent thus increasing sedentary lifestyles; the global economic recession, and the increasing number of families with working mothers which can affect the nutritional status of an adolescent. Few studies and data are available for Nigeria and many of these studies are in the Southern part of the country. This study explored some factors associated with malnutrition among Nigerian adolescents in secondary schools in the Federal capital territory.

Materials and Methods

This was a cross-sectional study conducted among adolescents in secondary schools in the Abuja Municipal area council in the Federal capital territory of Nigeria. A multistage sampling technique was employed. All schools in the Abuja Municipal Area council (AMAC) were stratified into urban and rural schools then eight schools were selected by balloting from a list. A school was selected from each of the four major districts of AMAC and four schools were selected from the rural area. Students' ages were verified (using school records and/or birth certificate) and only those between the ages of 10 and 19 years were selected. Informed consent was obtained from individual subject as well as the school authorities. The study excluded those adolescents who were physically challenged thus limiting physical activity.

Sample size determination used the approach described

by Araoye et al,¹³ and assumed a prevalence of 50% among adolescents in the population. Eight hundred and fifty students were selected from the four urban schools and an equal number were selected from the rural schools. The total number subjects enrolled were 1,700.

Random sampling was employed for the selection of students in each school. Information was obtained via the use of questionnaires that were administered by trained personnel. Subject's height and weight was taken in the presence of a chaperon assigned by the school. The floor-type height (H) and weight (W) measuring scale model ZT-120 was used for measurement using Massachusetts department of public health protocol. The nutritional status was determined using the formula: $BMI = W/H^2$, where W = weight (in kilograms) and H = height (in meters). The age and sex specific height and BMI percentile for each subject was determined using the 2007 WHO Height and BMI growth charts for age 5-19 years. The subjects were then classified into one of the following categories using previously used standards: normal, stunted, wasted, overweight or obese. The socioeconomic status of the students was determined as described by Olusanya et al.¹⁴ Data was analyzed using SPSS version 17 statistical package.

Results

Sociodemographic parameters

Only 1550 (91.2%) of the 1700 questionnaires were analyzed because of withdrawal of consent in 150 (8.8%). There were 688 (44.4%) males and 862 (55.6%) females and the Male: Female of 1:1.3. The mean age was 14.43 ± 1.94 years. Seven hundred and eighty (50.3%) were from urban schools while the 49.7% were selected from rural schools. The upper social class represented 708 (45.7%) of the study

Table 1: Distribution Of Mean Weight, Height And BMI For The Study Population

Age (years)	No	Mean weight (kg)	Mean Height (cm)	Mean BMI (kg/m ²)
10	23	34.87±5.05	143.00±7.72	16.97±1.36
11	83	40.35±8.31	147±7.78	18.34±2.74
12	170	42.82±8.22	150.64±7.15	18.70±2.64
13	224	47.55±9.56	155.10±7.93	19.62±2.84
14	290	50.26±10.23	156.94±7.98	20.30±3.12
15	287	53.76±9.21	160.56±7.45	20.81±2.90
16	241	56.18±9.53	163.00±8.37	21.09±2.87
17	138	57.65±7.89	163.05±8.22	21.71±2.97
18	84	59.52±8.81	164.29±7.82	21.95±2.86
19	10	57.60±6.42	163.70±5.24	21.73±1.87
Total	1550	51.07±10.80	157.88±9.33	20.31±3.07

Table 2: Pattern Of Physical Activities In The Study Population

Activity	Yes No (%)	No No (%)	Total No (%)
Hawking	197 (12.7)	1353 (87.3)	1550 (100.0)
School sport	1194 (77.0)	356 (23.0)	1550 (100.0)
Watch TV >3hour/day	635 (41.0)	915 (59.0)	1550 (100.0)
Play computer >3 hours/day	185 (11.9)	1365 (88.1)	1550 (100.0)

Table 3: Pattern Of Malnutrition By Gender

Malnutrition type	Male No (%)	Female No (%)	Odds ratio	X2	Df	p-value
Stunting	127 (18.5)	48 (5.6)	3.839	63.482	1	0.000*
Wasting	18 (2.6)	9 (1.0)	2.545	5.526	1	0.019*
Overweight	52 (7.6)	153 (17.7)	0.379	34.627	1	0.000*
Obesity	16 (2.3)	25 (2.9)	0.797	0.491	1	0.484
Total	213 (31.0)	235 (27.2)				

Table 4: Types Of Malnutrition By School Setting

Type of malnutrition	School setting No.(%)		Odds ratio	df	X ²	p-value
	Urban	rural				
Stunting	35 (4.5)	140 (18.2)	0.211	1	72.557	0.000*
Wasting	11 (1.4)	16 (2.1)	0.674	1	1.009	0.315
Overweight	120 (15.4)	85 (11.0)	1.465	1	6.376	0.012*
Obesity	28 (3.6)	13 (1.7)	2.168	1	5.440	0.020*

Table 5: Types Of Malnutrition By Socioeconomic Status Of The Family

Type of malnutrition	Socioeconomic status of family No (%)			X2	Df	p-value
	Upper	middle	Lower			
Stunting	50 (7.1)	70 (12.9)	55 (18.3)	28.924	2	0.000*
Wasting	13 (1.8)	8 (1.5)	6 (2.0)	0.370	2	0.831
Overweight	101 (14.3)	76 (14.0)	28 (9.3)	4.927	2	0.085
Obesity	22 (3.1)	15 (2.8)	4 (1.3)	2.616	2	0.270

Table 6: Malnutrition Type And Knowledge Of Nutrition Among Population

Type of malnutrition	Knowledge of malnutrition no (%)		Odds ratio	df	X ²	p-value
	Right	Wrong				
Stunting	65 (9.1)	110 (13.2)	0.659	1	6.410	0.011*
Wasting	11 (1.5)	16 (1.9)	0.800	1	0.321	0.571
Overweight	88 (12.3)	117 (14.0)	0.861	1	0.975	0.323
Obesity	16 (2.2)	25 (3.0)	0.747	1	0.855	0.353

Table 7: Relationship Between Malnutrition And Physical Activity

Activity	Response	Type of Malnutrition No (%)			
		Stunting	Wasting	Overweight	Obesity
Hawking	Yes	44 (22.2)	3 (1.5)	22 (11.1)	6 (3.0)
	No	131 (9.7)	2.4 (1.8)	183 (13.5)	35 (2.6)
X²		27.037	0.069	0.891	0.130
df	1	1	1	1	1
p value		0.000*	0.540	0.250	0.429
School sport	Yes	141 (12.4)	17 (1.5)	148 (13.0)	36 (3.2)
	No	34 (8.4)	10 (2.4)	56 (13.7)	5 (1.2)
X²		4.963	1.593	0.128	4.384
df		1	1	1	1
p value		0.026*	0.149	0.389	0.022*
Use computer	Yes	6 (3.2)	4 (2.2)	23 (12.4)	3 (1.6)
	No	169 (12.4)	23 (1.7)	182 (13.3)	38 (2.8)
X²		13.582	0.217	0.115	0.855
df		1	1	1	1
p value		0.000*	0.406	0.420	0.259
Watch TV	Yes	63 (9.9)	19 (3.0)	103 (16.2)	18 (2.8)
	No	112 (12.2)	8 (0.9)	102 (11.1)	23 (2.5)
X²		2.013	9.823	8.406	0.150
df		1	1	1	1
p value		0.090	0.002*	0.003*	0.407

Table 8: Regression Analysis Of Factors Associated With Malnutrition

Type of malnutrition	Associated factors	? coefficient	df	F	p-value
Stunting	School setting	0.157	1	42.347	0.000*
	Sex	0.178	1	53.363	0.000*
	SES	-0.049	2	3.062	0.047*
	Hawking	0.085	1	6.790	0.009*
	School sport	0.020	1	1.381	0.240
	Knowledge	0.005	1	0.128	0.721
Wasting	Sex	0.060	1	5.838	0.016*
	Watch TV	0.081	1	10.260	0.001*
Overweight	School setting	0.038	1	2.798	0.095
	Sex	0.143	1	38.510	0.000*
	Watch TV	0.065	1	6.465	0.011*
Obesity	School setting	0.065	1	7.113	0.008*
	School sport	0.060	1	8.869	0.003*

population; 542 (35.0%) were in the middle class and 300 (19.3%) in the lower class. In the urban area, 502 (64.4%) belong in the upper class and 68 (8.7%) in the lower class. In the rural area 206 (26.8%) and 232 (30.1%) belong in upper and lower class respectively ($p < 0.05$). The educational level of mothers was also documented thus: 615 (39.7%) tertiary education; 654 (42.2%) secondary education; 188 (12.1%) primary education and 93 (6.0%) had no formal education. A total of 1515 adolescents volunteered information with respect to family size and number of children in the household. The mean family size of the study population was 6.86 ± 2.22 (6.60 ± 2.09 in urban schools versus 7.11 ± 2.30 in rural schools; $p = 0.000$) and mean number of children in household 4.11 ± 2.00 (3.77 ± 1.81 in urban schools versus 4.45 ± 2.05 in rural schools; $p = 0.000$).

The mean weight, height and BMI of the adolescents are 51.07 ± 10.80 kg, 157.88 ± 9.33 cm, 20.30 ± 3.07 kg/m². Table 1 below shows the distribution of the anthropometry among the study population. The pattern of some physical activities was documented for the study population. These activities include hawking after school hours, participation in school sport, watching television for more than 3 hours/day, and playing computer for more than 3 hours/day. The finding in the population is documented in Table 2 below. More males, 533 (77.6%) participated in school sports compared to 606 (70.4%) females ($p = 0.001$). Hawking was found in 23.7% of those in the lower social class; 15.2% of those in middle and 6.3% of those from upper class. ($p = 0.000$)

The overall prevalence of any type of malnutrition in the sample population was 28.8% (48/1550). The types of malnutrition found was distributed as follows: 205 (13.2%) had overweight, 175 (11.3%) were stunted, 41 (2.6%) obese, 27 (1.7%) had wasting. The mean BMI, weight and height for males were 19.60 ± 2.71 kg/m², 50.81 ± 11.85 kg and 160 ± 11.14 cm respectively. The mean BMI, weight and height in females were 20.89 ± 3.22 kg/m², 51.28 ± 9.87 kg, 156.19 ± 7.16 cm respectively (p value 0.000). Table 3 below shows the pattern of malnutrition disaggregated for males and females.

Table 4 below shows the difference in the prevalence of overweight, stunting, wasting and obesity in the studied population. Stunting was found in 35 (4.5%) urban and 140 (18.2%) rural adolescents; overweight in 120 (15.4%) urban and 85 (11.0%) rural adolescents; obesity in 28 (3.6%) urban and 13 (1.7%) rural students. These differences were statistically significant with p values < 0.05 .

The types of malnutrition found among the adolescents were disaggregated by socioeconomic

status (SES). Stunting was seen in 7.1% of the upper class, 12.9% in the middle class and 18.3% of those from lower SES. This was statistically significant with a p value = 0.000.

The study also asked questions about right kinds of food to eat and this was documented as right or wrong knowledge. This is tabulated below in relation to malnutrition found in the population.

The relationship between the types of malnutrition with respect to physical activities was explored. Stunting was a significant finding among those who engaged in hawking after school hours (22.2% versus 9.7% and p value = 0.000). Obesity and stunting was also found more in those who engaged in school sport ($p < 0.05$). Overweight and wasting was significant among those who watched TV for more than 3 hours/day ($p < 0.05$).

A regression analysis of the factors explored showed that gender, and watching TV for > 3 hours/day remained significant factors with respect to overweight while school sport and setting were significant for obesity. School setting, sex and socioeconomic class as well as hawking after school hours were statistically significant for stunting.

Discussion

Severe forms of malnutrition contribute significantly to a higher morbidity and mortality in childhood.^{2,15} The association of over-nutrition with non-communicable diseases (NCDs) has long been established.^{11,12} The effect of malnutrition in adolescents has been less studied compared to the effects in childhood, but reports from various parts of the world have started to emerge showing the association of overweight and obesity with non-communicable diseases (NCDs) such as diabetes mellitus and hypertension.^{5,12,16} Health promotion and prevention of malnutrition and related disorders rely on an understanding of factors associated with these disorders. These factors vary between and within regions of the world. This study therefore investigated some of the factors associated with adolescent malnutrition in the FCT of Nigeria.

This study documented a higher prevalence of overweight and obesity among females when compared to males. This finding is consistent with earlier findings from other parts of Nigeria and elsewhere.^{3,6,17-19} These findings may be due to the fact that females are likely to lay down more fat due to the effect of oestrogens. In our culture, females also engage in cooking family meals and therefore have more access than males to larger portions though this was not investigated in this study. Also, females are

less likely to engage in school sports compared to males but they engage more in household chores. It is however different from what has been found among adolescents in some developed countries particularly in USA and some developing countries where more males were documented to have overnutrition.^{4, 5, 20-}

²²The finding that fewer females are overweight or obese in USA and some other developed countries may be related to the societal and media promotion/approval of thinness among females in such cultures. Perhaps, more females in the developed countries may also have eating disorders that leave them thin.

Those from upper socioeconomic class and urban schools had higher prevalence of overweight and obesity. This agrees with the findings of other workers from Nigeria.^{3,8,18} The socioeconomic class appears to reflect the access to food by the adolescents in our environment. The urban schools had more adolescents in the upper social class. In contrast, Gearhart et al found that those females from low socioeconomic class in the USA had a higher prevalence of obesity and overweight.²² He attributed his findings to less opportunities being available for those in the lower class to make appropriate food choices and their exposure to high calorie cheap food. Furthermore, less opportunity for physical activity was also alluded to among those from low social class in USA.²²

This study also showed that those who engaged in sedentary activity- watch TV for long duration- also had higher prevalence of overweight. This is understandable as energy is not expended as it is consumed hence conversion to fat which then accumulates. Obesity was found to be significant among those who engaged in physical activity. This may be a strategy for weight reduction in these adolescents rather than a routine.

Stunting was more prevalent among males and this may reflect the effect of chronic malnutrition. Physiologically, males have a greater growth velocity and for a longer duration compared to female adolescents. Hence, the height of the male adolescent may suffer more from the effect of chronic malnutrition. Furthermore, the other factors associated with stunting in the study population namely rural setting, low social economic class and hawking could contribute to chronic under-nutrition. On the other hand wasting is associated with the male gender and watching TV. These findings are not thought to be significant as wasting reflects more of an acute malnutrition in the adolescent. Moreover, this study did not document episodes of illnesses that could be associated with wasting.

Our findings suggest a rural-urban dichotomy in social class and malnutrition. The rural adolescents are affected by stunting while the urban adolescents have a high prevalence of overweight and obesity. It also

showed that females are affected more by over-nutrition while males are affected more by under-nutrition. The findings of this study are consistent with those of previous workers in Nigeria.^{6,8} The gender differences in type of malnutrition however vary in different settings as shown by studies from US, Iran and Nigeria. While females from low social class in US have over-nutrition, females in high social class from our study have overweight and obesity more frequently than those in the low social class.^{6-8, 22}

Limited data on physical activity was collected in this study- only related to school sports. There was no objective measurement of hours of activity or calories expended in the activities. The difficulties of obtaining information with respect to diet and the limited fund for this study precluded data collection on this aspect.

This study has no doubt been able to document some factors associated with malnutrition among adolescents that can be used in planning health promotion and prevention programmes. It also shows the need for wider collection of data on factors associated with malnutrition in our environment as variations clearly occur.

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References

1. Grisby DG, Shashidhar HR. Malnutrition. 2006; accessed 7/7/2008. www.emedecine.medscape.com/article/985140-overview
2. Ulasi TO, Ebenebe J. Nutritional disorders in Childhood. In: Azubuike JC, Nkanginieme KEO (ed) Paediatrics and Child Health in a tropical region: African Educational services (publishers), Owerri, 2007: 250-67
3. Ben-Bassey VP, Oduwale OA, Ogundipe OO. Prevalence of overweight and obesity in Eti-Osa Local government area, Lagos, Nigeria. *Obes Rev* 2007; 8(6):475-9
4. Jugesh C, Manorama V, Sandeep KR. Obesity among preadolescents and adolescents of developing country (India). *Asia Pac J Clin Nutr* 2004; 13(3): 231-5
5. Lissau I, Overpeck MD, Ruan WJ, Due P, Holstein BE, Hediger ML. The Health behaviour in school-aged children obesity working group: body mass index and overweight in adolescents in 13 European countries, Israel and The United States. *Arch Pediatr Adolesc Med* 2004; 158(1):27-33

6. Olumakaiye MF. Prevalence of underweight: a matter of concern among adolescents in Osun state, Nigeria. *Pakistan journal of Nutrition* 2008; 7(3):503-508
7. Doustmohammadian A, Dorostymotlagh AR, Keshavarz A, Sadrzadehyeganeh H, Mohammadpour-Ahrangani B. Socidemographic factors and BMI of female adolescent students in Semnan City, Iran *Mal J Nutr* 2009; 15(1):27-35
8. Oninla SO, Owa JA, Onayade AA, Taiwo O. Comparative study of nutritional status of urban and rural Nigeria school children. *J Trop Pediatr* 2007; 53(1):39-43
9. Kotian SK, Kumar SG, Kotian SS. Prevalence and determinants of overweight and obesity among adolescent school children in Karnataka, India. *Indian J Community Med* 2010; 35: 176-8
10. Ansa VO, Anah MU, Ndifon WO. Soft drink consumption and overweight/obesity among Nigerian adolescents. *CVD prevention and control journal* 2008; 3(4): 191-6
11. Blake K, Davis V. Adolescent medicine. In: Kliegman RM, Marcante KJ, Jenson HB, Behrman RE (eds) Nelson Essentials of Paediatrics: Saunders (Publishers), 2006. 342-356
12. WHO discussion paper on adolescent nutrition: Nutrition in adolescence: Issues and challenges for the Health sector 2005; accessed 7/7/2008. www.who.int/child-adolescent-health/New_publications/
13. Araoye MO. Subject selection. In : Research methodology with statistics for health and social sciences, Nathadex (Publishers), 2004.115-29.
14. Olusanya O, Okpere E, Ezimokhai M. The importance of social class in voluntary fertility control in a developing country. *West Afr J Med* 1985; 4:205-12.
15. Akinbami FO, Hamzat TK, Orimadegun AE, Tongo O, Oyeyemi L, Okafor O et al. Body mass composition: a predictor of admission outcomes among hospitalized Nigerian under-five children. *Asia Pac J Clin Nutr* 2010; 19(3): 295-300
16. Antonio P, Jose Antonio RM, Albertino D, Gaston B. Anthropometric indicators of Nutritional status: implication for fitness activity and health in school-aged children and adolescents from Maputo, Mozambique. *Am J Clin Nutr* 2003; 77(4): 952-9
17. Mohammadpour-Ahranjani B, Rashidi A, Karandish M, Eshranghian MR, Kalantari N. Prevalence of overweight and obesity in adolescent Tehrani students 2000-2001: An epidemic health problem. *Public Health Nutr* 2004; 7:645-8
18. Owa JA, Adejuyigbe O. Fat mass, fat mass percentage, body mass index and mid-upper arm circumference in a healthy population of Nigerian children. *J Trop Paedtr* 1997; 43:13-9
19. Ukegbu PO, Oninawo IA, Ukegbu AU. Nutritional status and energy intake of adolescents in Umuahia- Urban Nigeria. *Pakistan Journal of Nutrition* 2007; 6(6):641-6
20. Shi ZA, Lien NA, Kumar BAN, Dalen IA, Holanboe-Ottesen GA. The sociodemographic correlates of nutritional status of school adolescents in Jiangsu Province, China. *J adolesc health* 2005; 37(4): 313-22
21. Bener A. Prevalence of obesity, overweight and underweight in Qatari adolescents. *Food Nutr Bull* 2006; 27(1):39-45
22. Gearhart RF, Gruber DM, Vanata DF. Obesity in the lower socioeconomic segments of American society. Available on www.forumonpublicpolicy.com/archivesprings08/gearhart.pdf. accessed

Prevalence And Risk Factors For Human Pappiloma Virus Infection Among HIV Positive Pregnant Women In Urban Slums Of Osogbo, Nigeria.

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Abstract

Human Pappiloma Virus (HPV) infection is a disease of global public health importance, culminating into a high risk of cervical cancer. Most of the risk factors are modifiable, thus making HPV itself preventable. Efforts towards community HPV prevention and vaccination have not yielded the desired results, most especially in the face of co-infection with HIV.

This study assessed prevalence and risk factors for HPV among HIV positive pregnant women in Osogbo, Nigeria. Descriptive cross sectional study among pregnant HIV positive women of reproductive age selected using simple random sampling method. The IgG antibody tests to HPV were conducted using standard methods. Research instruments were semi structured interviewer administered questionnaire. Data was analyzed using the SPSS soft-ware version 17.0. Mean age of respondents was 33.0±2.1 years. Twenty seven (28.0%) were aware of HPV as a genital infection, while 7.1% of respondents had a positive HPV results and 92.9% HPV antibody test negative. Sexual risk score was high among 28(29.0%) of respondents while no respondent had gone for a HPV vaccination. Respondents with high sexual risk score were three and a half times more likely to have a positive HPV results compared to those with lower risk score (OR 3.6, 95%CI 0.740-1.706, p=0.066). Poor awareness, low prevalence of HPV, some level of high sexual risk behaviour and no record of HPV vaccination characterized the women studied, and these observations call for sustained community awareness programmes to reverse these trends.

Key words: HPV, Prevalence, Risk factors, HIV positive, Pregnant women

Introduction

Genital infection with Human Papilloma Virus (HPV) is a common sexually transmitted disease. Papilloma viruses comprise of a group of non-enveloped viruses with circular double-stranded DNA genome enclosed by icosahedral capsid and belonging to the Papillomaviridae family. ¹ They are further grouped into 'high-risk' (which are linked with cancers of the vulva, vagina, cervix, penis, anus and oropharynx), and 'low-risk' (cancerous related HPV types 6,11, 42, 43 and 44). ²⁻⁴ Like other Papillomaviruses, HPV establishes productive infections only in the epithelium of the skin or mucosa. Apart from sexual transmission, in-utero infections and newborns acquiring it as they pass through the birth canal of HPV-infected mothers are possible. ⁵ People infected with HPV are more at risk of developing cervical squamous intraepithelial lesions (SIL) and cervical cancer, ⁶ and antibody production against HPV is important for protecting against the spread of infection and re-infection and development of cancerous lesions. ^{7,8}

A meta-analysis gave an estimated global HPV prevalence of 11.7% ,with 24.0% HPV prevalence in Sub-Saharan Africa,21.4% Eastern European HPV prevalence and 16.1% HPV prevalence in Latin-America, showing the highest prevalence worldwide. ⁹ However, there is an advance clinical association between HPV and HIV-1 infection. ^{10, 11} Infection by multiple types is more common and HPV shedding is increased among those infected with HIV. HPV may also facilitate progression of HIV-1 disease by recruitment of HIV target cells, such as CD4+ T-cells and macrophages, into the site of active HPV infection. This is followed by induction of the production of inflammatory cytokines, including IL-6, TNF- 45; and IL-1, which in turn induce the replication and reverse transcription of HIV-1. ¹² HIV-positive women often have multifocal HPV lesions, including not only cervical lesions but also vulva and anal lesions. ¹³ Thus, HIV-positive women are at higher risk of developing squamous intraepithelial lesions of the cervix ^{14,15} and invasive cancer. ¹³

Many reasons were given for the difficulty in assessing the extent of the problem of genital HPV; including that HPV does not grow in tissue culture, that many

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serotypes exists, most infections are asymptomatic and because of poor surveillance systems in Nigeria. HPV is so common that most people get it at some time in their lives and one cannot tell who have it since its mostly symptomless. Prevalence of HPV in populations is also important in order to measure its worth or validity as a screening test, moreover attitude to taking the preventive HPV vaccine that could prevent future cervical cancer in Nigeria has been described as low. Prevalence studies would also showcase the importance of creating sustained women awareness among women and improve provider's knowledge and contributing to mortality and morbidity reduction.

Both humoral and cellular immune responses are induced by HPVs. Once sero-conversion occurs, anti-HPV antibody levels remain detectable for years.¹⁶ However, it has been noted that some individuals never seroconvert even though they might be persistently HPV DNA positive.^{17,18} As sexual intercourse remains the most significant (about 85%) route of transmission of HIV as it is significant for HPV transmission, then the issue of HPV infection among People living with HIV becomes an issue of public health importance; likewise the importance of routine screening of HIV positive women for HPV and other lower genital tract neoplasia and cancer.¹⁹ Thus primary prevention of HPV infection can be said to be more challenging than prevention of most other sexually transmitted infections. This study therefore assessed prevalence and sexual risk factors for HPV infection among HIV positive women in Osogbo in Southwestern Nigeria

.Materials and methods:

Study Area: Osogbo, the capital city of Osun state in southwestern Nigeria has a total population of about 780,000 according to a recent projection of the 2006 national population census.²⁰ HPV or cancer of the cervix prevalence in the city is not officially documented or unknown. There is a teaching and a general hospital in the city. There are two urban Local Government Areas (LGAs) in Osogbo city namely Olorunda and Osogbo LGAs. There are 4 designated slum areas in the city, two in each LGA and characterized by overcrowding and high sexual activities. Each slum area has two Primary Health Care centers serving them and managed by the Local Government authority.

Study population: consist of pregnant women of reproductive age group 15-49 years attending Antenatal clinics in PHCs in urban slums of Osogbo. Eligible woman should have been counseled and tested for HIV according to the Nigerian national guidelines, and confirmed positive at least in the last 6 months

Study design: descriptive cross sectional study of HPV prevalence and its sexual correlates among HIV positive pregnant women of reproductive age group in Osogbo.

Sample size estimation: Using the Leslie Kish formular for the calculation of sample size for population less than 10,000 as modified, and a HPV prevalence of 6.6¹, a sample size of 84 was calculated and this was increased to 100 for cases of attrition and non response to the study

Sampling: One PHC from the two urban slum based PHCs per LGA were selected using simple random sampling employing simple balloting. Questionnaires were equally allocated to the 2 PHCs. Respondents were selected in each health facility by serial recruitment of eligible women as they come to the 2 PHCs within the slum areas. Recruitment took place for a period of 12 months (January to December 2014) before the desired sample size was achieved and only subjects who freely consented to taking part in the study were recruited.

Research instruments: were semi structured and pre-tested interviewer administered questionnaire administered by 2 trained nurse assistants in each of the slum based PHCs. They were also trained on recognition and management of common STIs in addition to the use of the questionnaires. Study variables include socio-demographic characteristics, detailed sexual history and knowledge about HPV and cancer of the cervix. The laboratory assistants in the health facilities assisted in blood sample collection.

Laboratory screening for HPV: 5mls of blood sample were collected aseptically via venopuncture and dispensed into an anti-coagulated bottle. The samples were left to clot at room temperature before it is centrifuged to separate the serum from the clot. The serum sample were then stored at -20°C until analyzed for HPV antibody according to the instructions of the manufacturer of the HPV Eliza kit 96T from USA. The serum samples were then screened for IgG antibody against HPV.

The HPV test is based on antigen-antibody reaction which is the ability of human serum IgG antibodies to bind to type specific conformational epitopes present on cognate VLPs or their subunit capsomeres to determine sero-positivity or otherwise to HPV type 6,11,16 and 18 among the women. Sero-positivity of any serum sample indicates presence of IgG antibodies against HPV type 6,11,16 or 18 while sero-negativity implies the absence of IgG antibodies against any of the four HPV types.²¹

Ethical clearance: to conduct the study was obtained

from LAUTECH Teaching Hospital ethical review committee. Further permission were obtained from the local health authority and the PHCs supervising nursing officer. Written informed consent were obtained from each subject who took part in the study.

Study limitations: fears of stigma and discrimination associated with HIV was reduced and prevented by adequate privacy and confidentiality during selection of subjects, as well as assurances of confidentiality of data collected.

Data management: After cleaning, data was entered into the SPSS software version 17.0. data entered was validated through double entry and manual random checks. Frequency tables and a chart were generated. Sexual risk scores was calculated by aggregating 4 sexual variables and categories them into single, double and multiple sexual risk. The 4 sexual variables include: having multiple sexual partners, having casual sex, early sexual debut at less than 15 years of age and use of hormonal contraceptives for sexual risk protection. Single and double risk where eventually re-categorized as 'Low' while multiple risks (risks ≥ 3) were re-categorized as 'High' risk. The chi squared test was employed in bi-variate analysis. Binary logistic regression was carried out using some selected variables and major outcome variables. P values were considered significant at values <0.05 for all inferential statistics.

Results

A total of 98 respondents out of 100 were able to submit complete questionnaires and got the HPV test successfully conducted on them. Table 1 showed the

socio-demographic characteristics of respondents. Mean age of respondents was 33.0 ± 2.1 years, with the age group 21-30 years accounting for 46(47.0%) of respondents. Ninety two (93.9%) were married, While about 54(55.1%) had only up to secondary education level. Twenty seven (28.0%) were aware of HPV as a genital STIs while 71(72.0%) were not. Figure 1 showed that 7.1% of respondents have a positive HPV results while 92.9% were HPV negative.

Table 2 showed predisposing factors to HPV infection. Out of 28(29.0%) sexually high risk respondents, 2(7.1%) were HPV positive. Out of 2(2.0%) with history of STIs, none of them were found HPV positive. Out of 5(5.1%) identified as smokers, none were HPV positive. However, none of the study subjects have done HPV testing. Table 3 showed that a statistically significant association exists between HPV results and marital status ($p=0.013$) and sexual risk scores (0.001), while none exists between HPV results and awareness of HPV infection ($p=0.1410$).

On logistic regression, married respondents were three times less likely to have a positive HPV results compared to the never married (OR 0.34, 95%CI 0.034-3.483, $p=0.212$), though this observation was not statistically significant.. Being aware of HPV infection was not a strong determinant of HPV results (OR 1.1, 95%CI 0.192-5.799, $p=0.459$), though this observation was also not statistically significant. Respondents with high sexual risk scores were three and a half times more likely to have a positive HPV results compared to those with lower risk scores (OR 3.6, 95%CI 0.740-1.706, $p=0.066$), though this observation appears statistically significant.

Table 1: Socio-demographic characteristics of respondents

Characteristics	Frequency (n)	Percentage (%)
Age in years (Mean 33.0 ± 2.1)		
16-20		
21-30	2	2.0
31-50	46	47.0
	50	51.0
Marital status		
Married	92	93.9
Single	6	6.1
Religion		
Christian	56	57.0
Islam	42	43.0
Level of Education		
Primary	2	2.0
Secondary	54	55.1
Tertiary	42	42.9
Awareness about HPV		
Yes	27	28.0
No	71	72.0

Figure1: Pattern of HPV infection among respondents

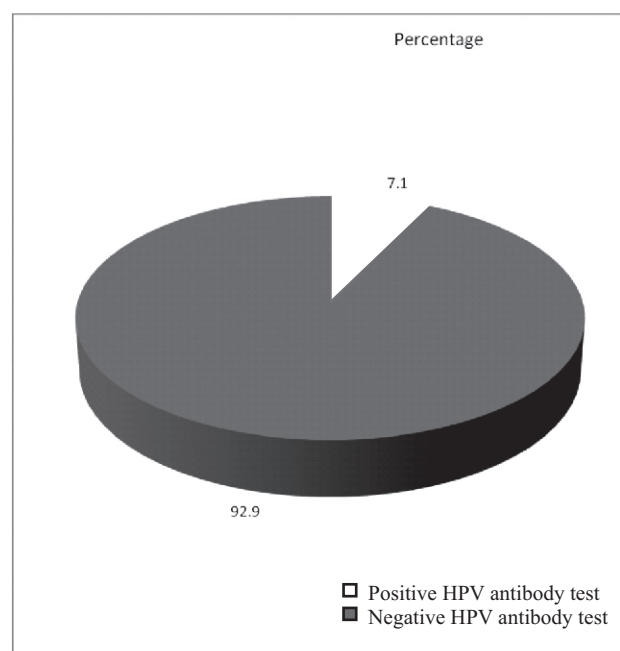


Table 2: Predisposing factors to HPV infection

Factors	Subjects		HPV Positive		HPV Negative	
	N	%	N	%	N	%
Sexual risk score						
High	28	29.0	2	7.1	26	92.9
Low	67	68.0	5	7.5	62	92.5
History of STI						
Yes	2	2.0	0	0	2	100
No	96	98.0	0	0	96	100
History tobacco use						
Yes	5	5.1	0	0	5	100
No	93	94.9	7	7.5	86	92.5
History of HPV Vaccination						
Yes	0	0	0	0	0	0
No	98	100	7	7.1	91	92.9

Table 3: Association between HIV results and some selected variables

Bi-variate analysis				
	HPV(n/%)		Statistics	
	Positive	negative	X ² value	P value
Marital status			0.8740	0.013
Married	6(6.5)	86(93.4)		
Non married	1(16.7)	5(83.3)		
Aware of HPV infection			0.0039	0.1410
Yes				
No	2(7.4)	25(92.6)		
	5(7.0)	66(93.0)		
Sexual risk score			2.783	0.001
High	4(14.3)	24(85.7)		
Low	3(4.5)	64(95.5)		

Binary logistic regression				
	OR	95%CI		P value
		Lower	Upper	
Marital status (reference category=never married)	0.34	0.034	3.483	0.212
Aware of HPV ((reference category =no)	1.1	0.192	5.799	0.459
Sexual risk score ((reference category = low)	3.6	0.740	1.706	0.066

CI denotes 'Confidence Interval'

OR denotes 'Odds Ratio'

Discussions

About one third of respondents were aware of HPV as a sexually transmitted infection of the genital tract. This is low compared to several other studies done within and outside Nigeria.²¹⁻²³ Generally, HPV and cancer of the cervix awareness has been low, either in the media, within hospital setting. Situation is complicated by the presence of poverty, ignorance, generally low level of education and poor infrastructure that characterized slum areas which

hitherto could have improved general health awareness among them. None of the NGOs around have programmes either in the area of HPV or cancer of the cervix programming. The fact that HPV and cancer of the cervix are problems of global public health importance calls for improved awareness among all women wherever they live.

It was observed that only 7.1% or less than one-tenth of the pregnant women tested had detectable IgG

antibodies against HPV type 6,11,16 or 18 Sero-types. This supports a similar study of 6.6% HPV prevalence in Ilesa, Osun State.¹ However, these figures are low when compared with previous studies of 37% HPV prevalence in Abuja,²⁴ 14.7% in Ondo State,¹¹ 26.3% in Ibadan Nigeria,²⁵ and 33.2% in Benin.²⁶ The low HPV prevalence observed in this study may be as a result of positive sexual behavioural change as a result of the widespread high awareness and health campaign against the HIV scourge, improved awareness about cancer of the cervix and HPV screening and the increasing awareness of HPV vaccine among the general population.

The high sexual risk score (about one third) and the corresponding proportion having a positive HPV test results may be said to be characterized of slum areas where overcrowding and sexual activities are high. However the number with previous history of sexually transmitted infections (STIs) and tobacco use does not tally with the zero prevalence of HPV infection recorded, and this is the pattern despite no history of prior HPV vaccination among respondents. HPV infection has been associated with risky sexual behaviour in other studies,^{10,19} supporting our pattern of findings. Non vaccination as supported by other studies,^{27,28} however calls for greater concern since HPV and subsequently cancer of the cervix is preventable through HPV vaccination. Thus there is a need to step up awareness about HPV vaccination among women of reproductive age in slums and other areas as well as continue awareness about implications of risky sexual behaviour most especially among youths and women of reproductive age group.

This study found out that being married and having risky sexual behaviour were found associated with HPV test results while high risk respondents were three times more likely to have a positive results. This supports other studies.^{10,19} Being married is a cultural and societal expectation of being faithful to one single sexual partner. Since HPV is a sexually transmitted infection, findings from this study are being proved correct on bi-variate analysis. For the same reasons, respondents with high sexual risk scores are likely to have multiple sexual partner, having earlier sexual debut and having casual sex, all these are behaviours which favoured a positive HPV results, as discovered by this study. As earlier stated, slum areas are notorious for risky sexual behaviour among several other societal vices. These findings also calls for more concerted efforts at improving sexuality education among women of reproductive age in sum and other areas of Osogbo and other cities in Southwestern Nigeria.

Conclusion:

Poor awareness and low prevalence of HPV and some level of high sexual risk characterized the pregnant women studied. None of the respondents has gone for a HPV vaccination. Because HPV sexually transmitted and associated with HIV infection, It is therefore imperative to have a sensitization program in place for the general public through appropriate routes such as the mass media, community sensitization and public health talks in hospitals and schools. In order to create an enabling environment favouring HPV vaccination among young girls and women, HPV vaccine should be integrated into existing National Immunization Scheme at highly subsidized rate, backed up with appropriate and sustained awareness programmes. HPV awareness can be improved by integration of knowledge of sexuality and family life health education into high school's curriculum towards reducing the spread of HPV and other sexually transmitted infections.

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References

1. Adekunle S, Sule WF and Oluwayelu DO. High negativity of IgG antibodies against human papillomavirus type 6, 11, 16 and 18 virus-like particles in healthy women of childbearing age. *J Exp Integr Med.* 2014; 4(1): 37-41
2. Frazer IH, Cox JT, Mayeaux EJ Jr, Franco EL, Moscicki AB, Palefsky JM et al. Advances in prevention of cervical cancer and other human papillomavirus-related diseases. *Pediatr Infect Dis J* 2006; 25:S65-81
3. Parkin DM, Bray F. The burden of HPV-related cancers. *Vaccine* 2006; 24:S11-25.
4. Trottier H, Franco EL. The epidemiology of genital human papillomavirus infection. *Vaccine* 2006; 24:S1-15.
5. Howley PM, Lowy DR. Papillomaviruses. In: Knipe DM, Howley PM (eds) *Fields Virology*, 5th edition, Lippincott Williams & Wilkins, Philadelphia, PA, pp 2299-2340, 2007.
6. Moodley JR, Constant D, Hoffman M, Salimo A, Allan B. and Rybicki E. Humanpapilloma virus prevalence, viral load and precancerous lesions of the cervix in women initiating highly active antiretroviral

- therapy in South Africa: a cross-sectional study. *BMC Cancer*, 2009; 9: 275-282.
7. Lowy DR, Schiller JT. Prophylactic human papillomavirus vaccines. *J Clin Invest* 2006; 116:1167-73.
8. Centers for Disease Control and Prevention. Quadrivalent human papillomavirus vaccine: recommendations of the advisory committee on immunization practices (ACIP). *MMWR* 2007; 56:RR-2.
9. Bruni L, Diaz M, Castellsagué X, Ferrer E, Bosch FX, de Sanjosé S. Cervical human papillomavirus prevalence in 5 continents: meta-analysis of 1 million women with normal cytological findings. *J Infect Dis*. 2010 Dec 15;202(12):1789-99.
10. Houlihan, CF, Larke NL, Watson-Jones D and Smith-McCune KK. (2012). Human papillomavirus infection and increased risk of HIV acquisition-A systematic review and meta-analysis. *AIDS*, 26(17):2211-2222.
11. Veldhuijzen NJ, Snijders PJ, Reiss P, Meijer CJ and Wiggert JH. (2010). Factors affecting transmission of mucosal human papillomavirus. *Lancet Infect Dis*. 10:862-874.
12. Gage JC, Ajenifuja KO, Wentzensen NA, Adepiti AC, Eklund C, Reilly M, Hutchinson M, Wacholder S, Harford J, Soliman AS, Burk RD, Schiffman M. The age-specific prevalence of human papillomavirus and risk of cytologic abnormalities in rural Nigeria: Implications for screen-and-treat strategies. *Int J Cancer* 2012; 130:2111-7.
13. Haverkos H, Rohrer M, and Pickworth W. The cause of invasive cervical cancer could be multifactorial. *Biomedicine and Pharmacotherapy*, 2000; 54(1): 54-59.
14. Hawes SE, Association of HIV-1 and HIV-2 infection with development of high-grade cervical neoplasia among high-risk women in Senegal. *Fifth International AIDS Malignancy Conference*. 2001..
15. Ellerbrock TV. Incidence of cervical squamous intraepithelial lesions in HIV-infected Women. *Journal of the American Medical Association*, 2000; 283(8): 1031-1037.
16. Scheurer ME, Tortolero-Luna G, Adler-Storthz K. Human papillomavirus infection: biology, epidemiology, and prevention. *Int J Gynecol Obstet* 2005; 15:727-46.
17. Carter JJ, Koutsky LA, Hughes JP, Lee SK, Kuypers J, Kiviat N, Galloway DA. Comparison of human papillomavirus type 16, 18, and 6 capsid antibody responses following incident infection. *J Infect Dis* 2000; 181:1911-9.
18. Pagliusi SR, Dillner J, Pawlita M, Quint WGV, Wheeler CM, Ferguson M. International Standard reagents for harmonization of HPV serology and DNA assays-an update. *Vaccine* 2006; 24:S193-200.
19. Ferenzy A, Coutle F, Franco E and Hankins C. Human papilloma virus and HIV co-infection and the risk of neoplasias of the lower genital tract: a review of recent developments. *CMA*, 2003; 169(5):431-34.
20. National Population Commission (NPC). Nigeria demographic and health survey. Calverton Maryland. NPC and ORC Macro, 2008: 45-47.
21. Awodele O, Adeyomoye A, Awodele DF, Kwashi V, Awodele IO and Dolapo DC. A Study on Cervical Cancer Screening Amongst Nurses in Lagos University Teaching Hospital, Lagos, Nigeria. *J Cancer Educ*. 2011 Sep; 26(3): 497-504.
22. McCarey C, Pirek D, Tebeu PM, Boulvain M, Doh AS and Petignat P. Awareness of HPV and cervical cancer prevention among Cameroonian healthcare workers. *BMC Women's Health*, 2011; 11:45
23. Hwaid AH. Knowledge and Awareness of Papillomavirus and Cervical Cancer among College Students and Health Care Workers Women in Diyala, Iraq. *American Journal of Public Health Research*, 2013; 1(8), 221-225.
24. Akarolo-Anthony SN, Famooto AO, Dareng EO, Olaniyan OB, Offiong R and Wheeler CM. Age-specific prevalence of human papilloma virus infection among Nigerian women, *BMC Public Health* 2014; 14:656
25. Thomas JO, Herrero R, Omigbodun AA, Ojemakinde K, Ajayi IO and Fawole A. Prevalence of Papillomavirus infection in women in Ibadan, Nigeria: A population based study. *British Journal of Cancer*. 2004; 90(3):638-645
26. Piras F, Piga M, De Montis A, Zannou ARF, Minerba L and Perra MT. Prevalence of human papillomavirus infection in women in Benin, West Africa, *Virology Journal* 2011; 8:514
27. Ayissi CA¹, Wamai RG, Oduwo GO, Perlman S, Welty E, Welty T, Manga S, Ogembo JG. Awareness, acceptability and uptake of human papilloma virus vaccine among Cameroonian school-attending female adolescents. *J Community Health*. 2012 Dec; 37(6):1127-35.
- Perlman S, RG, Bain PA, Welty T, E and Ogembo JG. Knowledge and Awareness of HPV Vaccine and Acceptability to Vaccinate in Sub-Saharan Africa: A Systematic Review *PLoS One*. 2014; 9(3): e90912.

Diagnosis And Outcome Of Chronic Subdural Haematomas In Ilorin

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Abstract

Chronic subdural haematoma (CSDH) is a common neurosurgical problem worldwide. The pathogenesis of CSDH is complex involving a vicious circle of bleeding from neocapillaries of membranes and fibrinolytic activities. The incidence is on the increase with aging population worldwide. Best modality for treating CSDH is yet to be agreed upon among neurosurgeons, however, there is increasing consensus with use of burr-hole craniostomy and subdural drainage as most favoured treatment modality. Outcome following surgical intervention is generally good. We described the management and outcomes of our series of 45 consecutive CSDH cases using single burr-hole craniostomy under local anaesthesia.

The mean age of the patients was 63 years. Most of them were male (80%) and more than half (57%) of the patients were involved in road traffic crashes sustaining head injury some time before the onset of symptoms. Only a few patients have known risk factors for CSDH. Diagnosis was delayed beyond one week of hospital admission in 33% patients. Thirty five patients had good recovery, 3 patients had moderate disability while 6 patients died giving a mortality of 13.6%. The recurrence rate was 6.6% which is comparable to other reports with similar operative techniques. Patients with bilateral hematomas had a statistically significant higher rate of poor outcome ($p=0.003$). Significant head trauma remained the most significant risk factor for CSDH in our patients. Single burr-hole craniostomy with drainage under local anaesthesia can be used to efficiently evacuate CSDH with high good recovery rate and less morbidity.

Keywords: Chronic, subdural haematoma, burr hole, craniotomy, drainage

Introduction

Chronic subdural haematoma (CSDH) is a common neurosurgical problem worldwide. While subacute subdural haematoma may eventually lead to CSDH in patients who have suffered traumatic brain injury, CSDH can occur *denovo* without a history of significant head trauma in patients with known risk factors like use of anticoagulants, alcoholism and seizure disorders. CSDH arises in the layer of loose dural border cells, an innermost layer of dura surrounded by firmly adherent dura cells on one side and arachnoid cells on the other.¹ The pathogenesis of CSDH is complex involving a vicious circle of bleeding from neocapillaries of membranes and fibrinolytic activities.^{1,2} The incidence of CSDH is on the increase with aging population worldwide. An incidence of about 5 per 100,000 per year is reported in the general population with a higher incidence of about 58 per 100,000 per year in elderly.³ Best modality for treating CSDH is not yet agreed among neurosurgeons but there is increasing consensus with use of burr-hole craniostomy and subdural drainage as most favoured treatment modality.^{4,5,6,7,8} Reoccurrence of CSDH does occur and the factors responsible for recurrent CSDH is still being debated. Post drainage has however been shown to reduce recurrent rate significantly.⁸ While in the western world the use of anticoagulant, antiplatelet therapy and alcohol abuse constitute the significant risk factors for CSDH, in Nigeria, sub-Saharan Africa, traumatic brain injury still constitutes a major risk in our population.⁹ Outcome following surgical intervention is generally good. The presence of co-morbidities like myocardial and renal problems however contributes to mortality in patients.^{10,11} We describe the management and outcomes of our series of 45 consecutive CSDH cases in our institution with single burr-hole craniostomy under local anaesthesia.

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Materials and Methods

The study was a prospective cohort study of all consecutive patients managed for chronic subdural haematoma in our unit during a 4 year period (December 2010 to January 2014). We enrolled 45 patients with symptomatic CSDH confirmed on cranial computed tomographic scan during the study.

period. Data collected included the patient's biodata, clinical characteristics, causes, surgical results, neurological status and Glasgow outcome score at discharge, complications and recurrence. Patients were followed up for minimum of 8 weeks. CSDH recurrence was defined as recurrence of neurologic symptoms and signs such as increasing headache and relapse of neurological deficits with demonstrable subdural collection on the operated side observed in a repeat CT scan. All patients underwent burr-hole drainage of the subdural collection. Burr-hole was sited over the area of maximal hematoma width. Local anaesthesia with scalp infiltration with 1% Xylocaine with adrenaline was employed in most cases; a few early patients were operated under general anaesthesia. Burr-hole trephination was fashioned with Hudson's brace followed by cruciate dural incision. Subdural haematoma was drained with aid of a silastic feeding tube size 8FR followed by alternating subdural irrigation with physiological saline and gentle aspiration until effluent return clear and closed-system drainage with the size 8FR feeding tube connected to a urine bag or emptied intravenous infusion bag as improvised reservoir. Subdural drain was left in situ usually for 24 hours. Antibiotic

prophylaxis was continued until drain removal. Patients were nursed supine for the first 24 hours and were allowed to mobilise freely thereafter. Routine post operative CT scan was not done.

Collated data were entered into SPSS version 20 (SPSS Inc, Chicago, IL). Simple descriptive statistical analyses were done. Data were compared using Fisher's exact test. A *p*-value of 0.05 was considered statistically significant.

Results

Forty five patients aged 25 to 105 years with mean age of 63 years (SD 15.954) were managed for CSDH over four years. Most patients were male (36, 80%) and majority (41, 91.1%) had history of significant head trauma. (Table 1) Road traffic accident (26, 63.4%) was the commonest cause of trauma, while falls accounted for eleven (26.8%) cases. Four patients were on anticoagulant drugs and 12 patients had history of significant alcohol use, 27 patients had co morbid disease; 17 of these were hypertensive, 7 were diabetics, 1 patient had both diabetics and hypertension, and 2 had more than one co morbid disease. (Table 2) Diagnosis was missed or delayed

Table 1: Demographic characteristics of patients

Age range	Frequency (%)
25 - 44	5 (11.1)
45 - 64	15 (33.3)
>64	25 (55.6)
Gender	
Male	36 (80)
Female	9 (20)
Total	45 (100.0)

Table 3: Clinical presentation of CSDH

Admission GCS	
14-15	21 (46.7)
9-13	16 (35.6)
=8	8 (17.8)
Initial diagnosis	
CSDH	29 (64.4)
CVD	8 (17.8)
Seizure disorder	2 (4.4)
Others	5 (11.1)
Location of lesions (n= 68)	
Right	8 (17.8)
Left	20 (44.4)
Bilateral	16 (35.6)

Table 2: Risk factors for CSDH

Variable	Frequency (%)
History of Trauma	41 (91.1)
Type of Trauma (n=30)	
RTA	20 (57.8)
Fall	11 (24.4)
Assault	3 (6.7)
Co-morbidity	
Hypertension	17 (37.8)
Diabetics	7 (15.6)
Hypertension/DM	1 (2.2)
Others	2 (4.4)

Table 4: Management and Outcome

Variable	Frequency (%)
Operative techniques	
Burr-hole craniostomy	41 (91.1)
Craniotomy	2 (4.4)
Post operative GCS	
15-14	37 (82.2)
13-9	6 (13.3)
=8	2 (4.4)
Post operative complications (n = 48)	
Seizures	2 (4.4)
Residual deficit	9 (20.0)
Pneumocephalus	1 (2.2)
Glasgow outcome score	
Good recovery	35 (77.8)
Moderate disability	3 (6.7)
Dead	6 (13.3)
Number of recurrence	3 (6.6)

beyond one week of hospital admission in 15 patients. Eight patients were initially mis-diagnosed as Cerebrovascular disease, 2 patients as seizures disorders and 5 as psychiatric disease before a CT scan was done which revealed CSDH. Twenty one (46.7 %) patients presented to the neurosurgery unit with a Glasgow coma score (GCS) of 14-15, 16 patients with GCS 9-13, and 8 patients had GCS 3 – 8. (Table 3)

Most hematoma (20, 44.4%) occurred on the left side, 16 (35.6%) were bilateral and 9 (20.0%) on the right. Majority were of mixed density (20, 44.4%) and 12 (26.7%) were hypodense. (Table 4)

The majority of our surgeries for CSDH (36 operations, 80%) were performed with local anaesthesia. Thirty five patients had good recovery, 3 patients had moderate disability while 6 patients died giving a mortality of 13.6%. All deaths occur in elderly patients and almost all of them had bilateral subdural hematoma (5, 83.3%). (Table 4) Patients with bilateral hematomas had a statistically significant higher rate of poor outcome ($p=0.003$). Three patients (6.6%) had recurrent of hematoma requiring re operation.

Discussion

The demographic characteristics of patients in this study with regards to age and gender are similar to those reported in other study in the Nigeria, sub Saharan Africa.^{9,12} Our study found that our patients were at least a decade younger when compared to reports from developed western world.^{3,13} This may be attributable to the longer life expectancy in the western world compared to sub Saharan Africa.

Head trauma was the single most significant aetiological factor across age groups in this study. More than half (57%) of the patients were involved in a road traffic crash some time before the onset of symptoms. Only a few patients have known risk factors for CSDH. Our findings is in sharp contrast to reports from developed western countries where risk factors like anticoagulants/ anti-platelets, alcohol use, renal failure constitute the main aetiological factors.^{14,15,16} These contrasting aetiologies of CSDH may also be a result of the age demographic differences between the sub Saharan Africa and developed Western world with Africa having a youthful population at risk of trauma and the western world with a ageing population in whom anticoagulant use, renal failure and other non trauma causes of CSDH are prevalent.

Clinical presentations of CSDH varies and can be non specific; attending physicians need to have a high index of suspicion and low thresholds for ordering brain CT scan in patients with symptoms and signs of raised intracranial pressure or neurological deficits.

There was a delay in diagnosis beyond 1 week of hospital admission in 33% of our patients with a misdiagnosis of CVD constituting the commonest reason for the delay. Bankole et al reported a 50% initial misdiagnosis with stroke as their commonest misdiagnosis.⁹ An internet based survey of Nigerian neurosurgeons revealed that misdiagnosis of CSDH was common and stroke as the usual initial diagnosis.⁴ This is because of the relative older age of the patient and hypertension being a common co morbid condition.

Though at present Magnetic resonance imaging (MRI) is considered the gold standard for diagnosis of chronic subdural haematomas, Brain CT scan is still very useful in its diagnosis and it is now available in many tertiary health centres in Nigeria and MRI is found in a few centres. Brain CT or MRI should be done in all patients with a clinical suspicion of CSDH. This will reduce the delay in making diagnosis.

Most of the hematoma in our patients was found on the left side, this has also been previously reported by some authors.¹² Others report no side predilection in hematoma location.⁹ There is however, no known relationship of side of involvement to outcome. Majority of our patients (44%) had mixed density lesions on brain CT scan followed by hypodense lesion. Chronic subdural hematoma is generally expected to be hypodense, the finding of a hyperdense or mixed density lesions have been attributed to recurrent bleeding into the hematoma cavity from the neomembranes. This however has not been shown to influence outcome or recurrent rate.

Surgery is currently the treatment of choice for CSDH, while conservative management is selected usually for moribund patients with significant co morbidity or asymptomatic patients with a small hematoma. Common surgical techniques in use to evacuate CSDH include twist drill craniostomy, burr-hole craniostomy and craniotomy with or without post operative irrigation and drainage. There continues to be a significant variation among neurosurgeons as there is no high quality evidence to show superiority of one method over another. Recent publications support use of burr-hole and post operative drainage as the preferred method. We routinely use single burr-hole craniostomy and evacuation with closed tube draining under local anaesthesia as this has shown comparable outcome and complication rates when compared to the use of two burr-holes for unilateral CSDH.^{3,17} Placement of one or two burr-hole craniostomy for drainage was reported as the most common method of treatment of CSDH among Nigerian neurosurgeons.⁴ Increasingly there is consensus worldwide that burr-hole craniostomy results in a reduced incidence of hematoma recurrence when compared to twist drill craniostomy and it is associated with less post operative morbidity than craniotomy. Use of local

anaesthesia with scalp infiltration with 1% lidocaine ensure rapid and safe evacuation of hematoma and eliminate untoward effects of general anaesthesia in this predominantly elderly population.

Post operative drains has been shown to reduce recurrent rate significantly when compared to use of no drains and time to recurrence was longer in patients who had drain inserted.⁸ No difference in medical or surgical complications was found between drain and no drain groups in a study where both were compared.⁸

The recurrence rate of 6.6% in this study is comparable to other reports with similar operative techniques^{6,8,9,11,18} Many risk factors for recurrences of CSDH have been reported previously and this include age, a history of trauma, bleeding tendency, brain atrophy, alcohol abuse, bilateral CSDH, higher hematoma density, postoperative air accumulation and poor surgical technique. However, the results reported have sometimes been inconsistent.⁶ The current study did not analyse risk factors in the patients that had recurrent haematomas. Advanced age and bilateral hematoma were factors that significantly predict mortality among our patients ($p < 0.005$)

Conclusion:

. Significant head trauma remained the most significant risk factor for CSDH in our patients. Single burr hole craniostomy with drainage under local anaesthesia resulted in good surgical outcome in most patients. This treatment modality can be used to efficiently evacuate CSDH with less morbidity and lower recurrence rate

References

1. Santarius T, Hutchinson PJ. Chronic subdural haematoma: time to rationalize treatment? *British Journal of Neurosurgery*, August 2004; 18(4): 328 – 332
2. Hussein M. E. E. H. Chronic subdural haematoma treated by craniotomy, durectomy, outer membranectomy and subgaleal suction drainage. Personal experience in 39 patients. *Br J of Neurosurg* 2003; 17(3): 244 – 247
3. Santarius T, Lawton R, Kirkpatrick PJ, Hutchinson PJ. The management of primary chronic subdural haematoma: a questionnaire survey of practice in the United Kingdom and the Republic of Ireland. *Br J Neurosurg* 2008; 22(4): 529 – 534.
4. Rabiou TB. Chronic subdural hematoma: A survey of neurosurgeons' practices in Nigeria *Surg Neurol Int.* 2013; 4: 58
5. Santarius T, Peter JK, Dharmendra G, Hui LC, Ibrahim J, Peter S, Hugh KR, Hani M, Richard A P, Stephen JP, Ramez WK, John P, Peter JH. Use of drain versus no drains after burr-hole evacuation of chronic subdural haematoma: a randomised controlled trial. *Lancet* 2009; 374: 1067 – 1073.
6. Weigel R, Schmiedek P, Krauss J K. Outcome of contemporary surgery for chronic subdural haematoma: evidence based review. *J Neurol Neurosurg Psychiatry* 2003; 74: 937 – 943
7. Han HJ, Park CW, Kim EY, Yoo CJ, Kim YB, Kim WK One vs. Two Burr Hole Craniostomy in Surgical Treatment of Chronic Subdural Hematoma. *J Korean Neurosurg Soc* 2009; 46 : 87-92
8. Abouzari M, Rashidi A, Rezaii J, Esfandiari K, Asadollahi M, Aleali H, Abdollahzadeh M, The role of postoperative patient posture in the recurrence of traumatic chronic subdural hematoma after burr-hole surgery. *Neurosurgery* 2007; 61: 794 – 97
9. Bankole OB, Yusuf AS, Kanu OO, Ukponmwan E, Nnadi MON, Arigbabu SO.: Chronic Subdural Haematoma: clinical presentation, Surgical Treatment and Outcome at the Lagos University Teaching Hospital. . *African Journal Neurological Sciences.* 2011; 30
10. Agunloye AM, Adeyinka AO, , Malomo A, Shokunbi MT Computerised tomography of intracranial subdural haematoma in Ibadan. *Afr J Med Med Sci.* 2003; 32(3): 235-238
11. Mori K and Maeda M, Surgical treatment of chronic subdural hematoma in 500 consecutive cases: clinical characteristics, surgical outcome, complications, and recurrence rate, *Neurol Med Chir* 41 (2001); 371–381
12. Adeolu AA , Rabiou TB, Adeleye AO. Post-operative day two versus day seven mobilization after burr-hole drainage of subacute and chronic subdural haematoma in Nigerians. *British Journal of Neurosurgery*, October 2012; 26(5): 743–746
13. Miranda LB, Braxton E, Hobb J, Quigley MR, Chronic subdural hematoma in the elderly: not a benign disease. *J Neurosurg* 2011; 114: 72–6
14. Tsai TH, Lieu AS, Hwang SL, Huang TY, Hwang YF. A comparative study of the patients with bilateral or unilateral chronic subdural hematoma: precipitating factors and postoperative outcomes. *J. Trauma.* 2010 Mar; 68(3): 571-5.
15. Yvonne M, Muaath A O, Michael R G, Joachim M. K. O. Chronic subdural hematoma – Craniotomy versus burrhole trepanation. *British Journal of Neurosurgery*, December 2009; 23(6): 612–616.
16. . Chen J C, Levy M L. Causes, epidemiology, and risk factors of chronic subdural hematoma. *Neurosurg Clin N Am* 2000; 11: 399 – 406.
17. Taussky P, Fandino J, Landolt H. Number of burr holes as independent predictor of postoperative recurrence in chronic subdural haematoma. *Br J Neurosurg* 2008; 22(2): 279–82.
18. Wakai S, Hashimoto K, Watanabe N, Inoh S, Ochiai C and Nagai M, Efficacy of closed-system drainage in treating chronic subdural hematoma: a prospective comparative study, *Neurosurgery* 26 (1990); 771–773

A modified Single-track Mattress Suture Technique For Skin Closure.

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Abstract:

The quest for cosmetics has ushered into the medical literature a lot of methods and modifications in the technique used for skin closure.

The objective of this study was to describe a technical modification of mattress suture type of skin closure technique and its observable outcome among urological patients that were operated in our institution.

This was a prospective study of urologic patients who had modified Single-track Mattress Suture technique for skin closure at the University of Ilorin Teaching Hospital, Ilorin and the Federal Medical Centre (now Federal Teaching Hospital), Gombe from January 2007 to December 2009. A proforma, that contained the demographic variables, the indication for operation and the early wound outcome, was used for data collection. The quality of the scar and its acceptability was assessed at 3-month post operation. The data was analyzed with the aid of SPSS version 14 software.

A total of 107 patients were studied. The male to female ratio was 5:1 and the mean age was 48.7 years. The majority of the patients (56%) had open prostatectomy and suprapubic cystostomy for obstructive benign prostate hyperplasia and acute urine retention respectively. The operations on the upper urinary tract were mainly approached through subcostal or modified Gibson's incisions. Wound complications were encountered in eight of the patients.

Although, there is the need for a prospective randomized trial comparing this technique with other established methods of skin closure; however, we conclude that the preliminary observation of the outcome of this method of skin closure may support its place in the surgeons' armamentarium.

Keywords: modified mattress suture technique, urologic surgery, skin closure.

Introduction

Surgeons are often challenged with managing wound which have been surgically made, traumatic or infective in origins. The aims of wound management in surgical practice are to allow for wound healing by primary intention, to minimize the complication and allow for acceptable cosmetic appearance of the scar^{1,2}. From ancient time the cosmetic appearance of surgical scar has being a cause for concern among patients, more especially the female folks. In the recent times it has become more worrisome among most patients and the attending surgeon who had to take extra effort, caution and concern about how and where he places his incision and the way it is being closed^{2,3}.

The quest for a cosmetically acceptable scar has ushered into the medical literature a lot of methods and modifications in the technique, the suture material and the type of needle used for skin closure¹⁻⁵. These methods include, among others, continuous overhand suture, continuous blanket suture, ordinary interrupted sutures, eversion suture, mattress suture (either vertical mattress or the Halsted mattress suture) and subcuticular skin closure, with either an absorbable or non-absorbable suture material¹⁻⁶.

Skin clips, strips/tapes, staple and "sutureless" skin apposition with firm dressing, after closure of the subcutaneous tissue, are all evidences of the surgeons' conscious efforts at improving the cosmetic appearance of "his" scar⁶. In addition, several adhesive molecules have been used for skin closure⁷⁻⁹. Each of the methods mentioned are not without its merit(s) and demerits(s). The cost and the availability of the clips, the tapes, adhesive molecules and staples constitute constraints to practice in our resource-poor setting.

We thence describe this modest technique of a

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modified mattress suture skin closure which is non expensive, of comparable operation time and cosmetically acceptable among our patients.

Subjects and Methods

This was a prospective study of urologic patients who had modified Single-track Mattress Suture technique for skin closure, irrespective of type of operation, at the University of Ilorin Teaching Hospital, Ilorin and the Federal Medical Centre (now Federal Teaching Hospital), Gombe from January 2007 to December 2009. The study was conducted between January 2007 and December 2009. A proforma containing the demographic variables of the patients, the indication for operation and the early wound outcome was used for data collection. The quality of the scar and its acceptability was assessed at 3-month post operation in the out-patient clinic during follow up. The data was analyzed with the aid of SPSS software.

Surgical Technique

For the purpose of description, the technique is exemplified using a pfannestiel incision. Following the closure of the rectus sheath, usually with a non-absorbable suture (NAS), the Scarpa's, Camper's and the subcutaneous tissues were apposed with synthetic absorbable suture (SAS- 2/0 or 3/0 monocryl) in a single layer, or occasionally in two layers (often in patient with lot of fat deposit) of minimal interrupted sutures. The wound was then cleansed with normal saline and dried with gauze [figure 1a].



Figure 1a: A Pfannestiel wound ready for suturing.

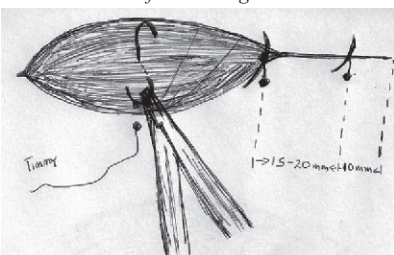


Figure 2a. A schematic sketch of the modified mattress

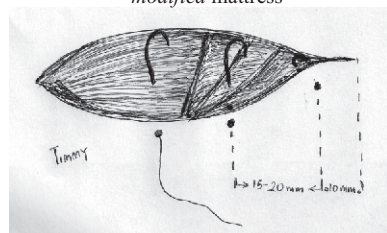


Figure 2b. A schematic sketch of the modified mattress



Figure 1b: A sutured Pfannestiel's incision. Note the interspaces between adjacent sutures. The suture is not extruding from the upper flap.



Figure 3: Wound infection in the patient that was initially treated for urinary tuberculosis. Note one of the skin nylon stitches in the wound and the single track on the lower part of the scar.

It is advised for a right-handed surgeon to stay to the right of the patient and vice versa; this allows the stitch entrance from the lower skin flap which adds to the cosmetic appearance of the scar with the stitch tracks below the incision [figure 1b & c].

A 3/0 monofilament nylon suture with 3/8 curved cutting needle was preferably used for the suturing technique. The first stitch was taken about 10mm from the left angle of the incision and the subsequent stitches being 15mm to 20mm apart. The point of entry of the needle-track to the skin should be 3-5mm from the cut edge of the lower flap; the needle enters the lower flap skin and comes out taking the subcutaneous tissue of the upper skin flap to exit through its subcuticle **without piercing the skin**. It then picks the edge of the lower skin flap cuticle, without piercing the skin, and tied in the usual manner [figure 2a&b].

The stitches were removed easily, after the wound is expected to have healed, by lifting the cut edge of the stitch with the left hand and cut portion of the stitch outside connecting between the entrance of the stitch and the knot, then check for complete removal of the stitch.

Results

A total of 107 patients had their surgical wound closed using the modified single-track mattress suture technique. Eighteen of them were female while the



Figure 1c: Note the healed single point entry of the suture from the lower flap.



Figure 4: Modified Gibson's incision closed by modified mattress suture ready for stitch removal

Table 1: Type of Operation and the Incision

Operation/ Incision	Nephrectomy	Prostatectomy	Pyeloplasty	Pyelolithotomy	Suprapubic cystostomy	Ureteroneocystostomy	varicocelectomy	total
12 Rib Bed	1							1
“Hockey Stick”						1		1
Inguinal incision							12	12
Modified Gibson’s						5		5
Paramedian	1							1
Pfannestiel		37			23			60
Sub-costal	5		7	15				27
Total	7	37	7	15	23	6	12	107

remaining 89 patients were male; giving a male to female ratio of 5:1. The mean age was 48.7 years ($\pm$ 19.3) with a range of 18-90 years.

The majority of the patients 60 of 107 (56%) had open prostatectomy and suprapubic cystostomy for obstructive benign prostate hyperplasia and acute urine retention respectively via pfannestiel incision. The operations on the upper urinary tract were mainly approached through subcostal or modified Gibson's incisions. Other incisions used were paramedian and hockey stick incisions in one patient each [Table 1].

Wound complications were encountered in eight (7.5%) of the patients. Five of them were early complication of superficial wound infection and wound dehiscence [figure 3]. The remaining three patients had hypertrophic scar.

There was no difficulty encountered for removal of the stitches. Four of them were not happy with their wound; incidentally all those that were not happy with the wound outcome were young females.

Discussion

The surgical scar occupies an important position in surgical practice. It may cause functional impairment or constitute a cosmetic nuisance to the patient. It may have impact on the chosen career and thus may warrant surgical revision of the scar^{2,3,5}.

The variety of cases seen reflected the pattern of urologic problems encountered in most part of the West African sub region, the age range and male to female ratio was in conformity with earlier report¹⁰. For the surgeon, it is not only important to seeing a cosmetically and functionally satisfactory outcome

but also to avoid litigation due to ugly scars¹¹⁻¹³. To the eyes of the untrained, the scar represents the mirror through which the overall success of the surgical operation is assessed¹².

Several studies have been devoted to ways at improving the surgical scar; these have ranged from improvements in the placement of incision, suture materials, and the techniques of wound closure¹⁴⁻²⁰. At their best, controversies still surrounds the materials and technique that applies to all wounds.

It is not surprising that most studies on surgical wound outcome are from the developed world because of the medico-legal stance on the issue. However, it is pertinent to realize that with increasing awareness and development, and the fact that the world is increasingly becoming a global village, litigation from ugly scar may arise in our environment in the nearest future¹.

This modest technique of skin closure is thus described with the hope that it will share in the satisfactory outcome that is often found with the subcuticular and other methods of wound closure. Although, the subcuticular suture gives a very fine and neat scar due to the perfect approximation of the skin margins and avoided additional scarring from suture however, its drawback is that it gives no support to the underlying tissue^{21,22}. Our modified Single-track mattress suture technique has minimal tissue scarring from the single subdermal track but with a strong support to the underlying tissue unlike the subcuticular suture. In addition, in the event of wound infection or haematoma a single stitch or two can be removed to allow for drainage of pus and still allow for fairly satisfactory outcome without the need for secondary

wound closure; this is not often possible with subcuticular closure²².

The single track of entrance [figure 1b, 1c & 3], especially with the 3/0 nylon (3/8 needle), constitute an advantage over the four tracks (two entry and two exit) wound found with the use of through-and-through skin closure, which gives an unacceptable "railroad-track"-looking scar that is found with the classical mattress techniques. The complications that followed this method of skin closure were quite comparable with other methods, such as the simple interrupted suture, the vertical mattress suture and the horizontal mattress suture, and they were not necessarily peculiar to this method^{21,22}.

In conclusion, there is a need for a prospective randomized trial comparing this technique with other established methods of skin closure; however, we conclude that the preliminary observation of the outcome of this method of skin closure may support its place in the surgeons' armamentarium.

References

1. Osuigwe AN, Ekwunife CN, Ihekwoaba CH. Skin closure after groin hernia in children: A comparative study of three suture material and two suture techniques. *Afr J Urol* 2005; 11: 282-286.
2. Thomas JR, Prendiville S. Update in scar revision. *Facial Plast Surg Clin North Am* 2002; 10: 103-111.
3. Bradley DT, Park SS. Scar revision via resurfacing. *Facial Plast Surg* 2001; 17: 253-262.
4. Webster RC. Cosmetic concepts in scar camouflaging: Serial excisional and broken line techniques. *Trans Am Acad Ophthalmol Otolaryngol* 1969; 73: 256-265.
5. Cassuto D, Emmanuelli G. Non-ablative scar revision using a long pulse frequency double Nd: YAG laser. *J Cosmet Laser Ther* 2003; 5: 135-137.
6. Sir Alfred Cuschieri and Steele RJC. Surgical craft and technology. In Cuschieri A, Steele RJC and Moossa AR (editors). *Essential Surgical Practice*. Vol.1 4th Ed. 2000. Butterworth Heinemann publisher. Pg 37-68.
7. Amiel GE, Sukhotnik I, Kavar B, Siplovich L. Use of N-butyl-2-cyanoacrylate in elective incision: long term outcome. *J Am Coll Surg* 1999; 189: 21-25.
8. Bain MA, Peterson EA, Murphy RX. Dermabond bolster-assisted primary closure of Atrophic skin. *Plast Reconstr Surg* 2009; 123: 147e-149e.
9. Bozkurt MK, Saydam L. The use of cyanoacrylates for wound closure in the head and neck surgery. *Eur Arch Otorhinolaryngol* 2008; 265: 331-335.
10. Mbibu NH, Nwofor AME, Khalid L. Spectrum of Urologic disease in the West African sub region. *Ann Afr Med* 2002; 1: 44-52.
11. Schulte KM, Roher HD. Medico-legal aspect of thyroid surgery. *Chirurg* 1999; 70: 1131-1135.
12. Lorio M. Esthetic problem in surgery of the male external genitalia: medico-legal aspects. *Arch Ital Urol Androl* 1998; 70: 263-266.
13. Singer AJ, Quinn JV, Thode HC Jr, Hollander JE, Trauma seal study group. Determinants of poor outcome after laceration and surgical incision repair. *Plast Reconstr Surg* 2002; 110: 429
14. Lindholt JS, Moller-christensen T, Steele RE. The cosmetic outcome of the scar formation after caesarian section: percutaneous or intracutaneous suture. *Acta ObstetGynaecol Scand* 1944; 73: 730-735.
15. Warren RA, Roomi R. Ready-stitch: a new device for the closure of skin wounds. *Ann Plast Surg* 1990; 25: 230-233.
16. Keng TM, Bucknall TE. A clinical trial of tissue adhesive (histoacryl) in skin closure of groin wounds. *Med J Malaysia* 1989; 44: 122-128.
17. Spotnitz WD, Falstrom JK, Rodeheaver GT. The role of sutures and fibrin sealant in wound healing. *Surg Clin North Am* 1997; 77: 651-669.
18. Grant A. The choice of suture materials and techniques for repair of perineal trauma: an overview of evidence from controlled trials. *Br J Obstet Gynaecol* 1989; 96: 1281-1289.
19. Coulthard P, Esposito M, Worthington HV, van der Elst M, van Waas OJ, Darcey J. Tissue adhesives for closure of surgical incisions. *Cochrane Database Syst Rev* 2010; May 12; 5: CD004287. Review.
20. Ong CC, Jacobsen AS, Joseph VT. Comparing wound closure using tissue glue versus subcuticular suture for paediatric surgical incisions: a prospective randomized trial. *Pediatr Surg Int* 2002; 18: 553-559.
21. Rintoul RF, Watson ACH. Incisions and Sutures; Plastic surgery. In Rintoul RF (Editors). *Farquharson's Textbook of Operative Surgery*. 8th Edition. 1995. Churchill Livingstone Publisher. Pp 1-18.
22. Jain SK, Stoker DL. Wound Closure Techniques. In Jain SK and Stoker DL (Editors). *Basic Surgical Skills & Techniques*. Jaypee Brothers Medical Publishers. Pp 30-35.

Anaesthetic Challenges In Gunshot Injury To The Neck

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Abstract

A 25 year old man presented at emergency room (ER) of our hospital with bleeding from the neck and inability to talk about 45 minutes following gunshot injury. He was shot by a policeman who took him for an armed robber.

He was resuscitated and on examination, he was conscious, aphasic, and pale. His pulse was 81 beats/min (regular, normal volume), Respiratory rate – 26 breath/min, Blood Pressure – 100/54 mmHg, and oxygen saturation – 96%.

Tracheal was completely transected, exposing the thyroid cartilage.

Patient had wound exploration 5 hours after injury under general anaesthesia with anticipated difficult airway. Tracheotomy was done by the ENT surgeon with size 8 cuffed tracheostomy tube.

External wound measured 10cm by 12cm. intraoperative findings were fractured thyroid cartilage, oesophageal tear with epiglottis. No large blood vessels injury. Oesophageal rent was repaired, and he was transfused with two pint of whole blood intraoperatively.

About 15hrs postoperatively, he was pain free, no respiratory difficulty and vital signs remain stable.

The tracheostomy tube was removed on the 23rd day postoperatively. He developed postoperative hoarseness of voice and opinion of Speech therapist was sought for speech rehabilitation. Oral feeding was commenced on 154th day post operatively without choking and finally discharged to clinic for further follow up.

Timing is essential in the management of this patient. Our case demonstrated one of the possible ways of managing penetrating neck injury in a low resource country.

Keywords: Penetrating neck injury, difficult airway, airway management.

Introduction

Penetrating neck injury is a potentially life threatening condition that requires urgent intervention. There could be damage to major aero digestive and vascular organs in the neck. Knowledge of the physical properties of the penetrating object or weapon can help determine the treatment plan and predict the risk of injury. All tracheal and esophageal injuries should be repaired primarily.¹

Gunshot injury is a surgical emergency and a form of penetrating injury. Most military rifles have a jacket of strong metal, usually copper that surrounds a lead projectile and because of lack of deformation these military bullets create a clean hold with a through and through wound without a lead track to follow,² the extent of the damage is dependent on a number of factors, such as: magnitude of energy transferred, distance travelled by the missile, type of bullet, and the structures encountered before and on penetration. In general, high-energy transfer gun shots fired at close range inflict the most damage.³ Missile injuries are broadly described as penetrating (25%), perforating (38%) and avulsing (37%).³ The ideal time and method of treatment remains a debate.^{4,5} Several surgeons argue that because of the mechanism of injury, early aggressive primary reconstruction might not be ideal. It is with this perspective that a universal consensus regarding the management of gunshot injury to the face and neck was reached and steps taken include securing the airway which could be challenging even with the most skilled anaesthetist. Therefore, familiarity with multiple approaches to securing a definitive airway is required because success is not guaranteed with any single technique. Others include controlling hemorrhage; identifying other injuries and preventing additional injury; and repair and/or reconstruction of traumatic deformities.⁶

Case Presentation

A 25 year old man who was co-managed by Otorhinolaryngologist and the Anaesthetist as a case of gunshot injury to the neck. He presented at emergency room (ER) of our hospital with bleeding from the neck and inability to talk of about 45min following gunshot

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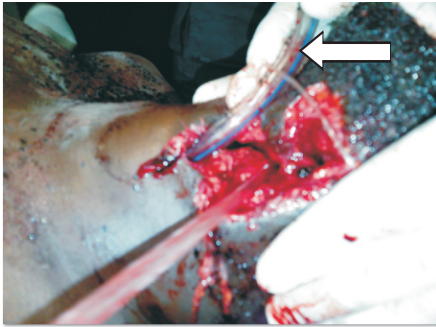


Fig 1: Direct insertion of ETT into the tracheal



Fig 2: ETT held with Anaesthetist hand

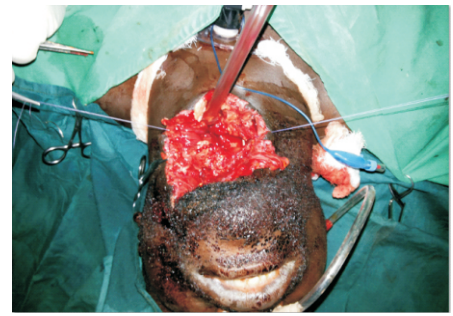


Fig 3: Tracheostomy insitu

injury to the neck. He was shot by a policeman who took him as an armed robber.

He presented with bleeding from the neck, and inability to phonate. Patient was resuscitated at ER with I.V fluids (normal saline), four unit of blood was crossmatch.

On examination, he was conscious, aphasic, and pale. His pulse was 81beat/min (regular, normal volume), Respiratory rate – 26breath/min, Blood Pressure – 100/54mmHg, and oxygen saturation – 96%.

Tracheal was completely transected, exposing the thyroid cartilage.

Patient had wound exploration 5hours after injury under general anaesthesia with anticipated difficult airway.

Anaesthesia was co-induced with I.V ketamine 100mg, I.V fentanyl 100ug and 10mg I.V diazepam.

Size 8.5 cuffed endotracheal tube (ETT) was passed through the tracheal opening, cuff inflated, (figure 1) and correct tube placement confirmed with capnograph and equal air entry bilaterally on auscultation of the chest (figure 2). Neuromuscular paralysis was induced with I.V pancuronium 0.1mg/kg. Anaesthesia maintained with Isoflurane and oxygen.

Tracheotomy was done by the ENT surgeon with size 8 cuffed tracheostomy tube while the ETT was held with hand during the procedure because it cannot be secured (figure 2). Anaesthesia circuit was connected to tracheostomy tube after confirmation of correct placement and ETT was removed completely (figure 3).

External wound measured 10cm by 12cm. intraoperative findings were fractured thyroid cartilage, oesophageal tear with epiglottis. No large blood vessels injury. Oesophageal rent was repaired, and he was transfused with two pint of whole blood intraoperatively.

At the end of the surgery, inhalational agent was cut off, and residual neuromuscular paralysis was reversed using atropine at 0.02mg/kg with neostigmin 0.05mg/kg. Patient was transferred to recovery room after he regains full consciousness.

About 15hrs postoperatively, he was pain free, no respiratory difficulty and vital signs remain stable.

Video Laryngoscopy shows normal tongue base and

valleculae but the epiglottis appeared amputated at the tip. The right vocal cord has ragged edge, while the left vocal cord is absent with the right vocal cord crossing the midline.

The tracheostomy tube was removed on the 23rd day postoperatively. He developed postoperative hoarseness of voice and opinion of Speech therapist was sought for speech rehabilitation. Oral feeding was commenced on 154th POD without choking and finally discharged to clinic for further follows up.

Discussion

Our case demonstrates a situation involving direct high-energy transfer injury. It also represents a penetrating form of gunshot injury to the neck resulting in fractured thyroid cartilage and esophageal tear. It is important to note that airway management is crucial to the successful management of penetrating neck injuries. Orotracheal intubation is the initial method of choice however, no single method is 100% successful at all times. In this case, the endotracheal tube was passed directly through the tracheal opening, cuff was inflated and correct placement confirmed with the capnograph. The time for laryngoscopy was eliminated and airway was secured through the fastest and safest means.

The mortality of penetrating neck injuries until World War II remained about 15%. It was reduced generally to 4% - 7% by the end of the Vietnam War. This improvement occurred through mandatory exploration of all wounds penetrating the platysma. The idea of mandatory exploration was advocated in World War II by Fogelman and Steward in 1956 for civilian injuries.⁷

Presentation range from patients who have no symptoms to those who have life-threatening airway compromise or profound shock. Patients may also present with dyspnea, hoarseness, and cough. Kelly and colleagues in 1985 published a 20-year study that examined 106 consecutive patients who had neck trauma (100 penetrating and 6 blunt); all the 80 patients who had tracheal injuries had signs of airway compromise in the emergency department. Hemoptysis was an unreliable sign of serious injury

and patients who had major vascular or tracheal injuries rarely survived.⁸

Early detection of penetrating esophageal injuries remains difficult. The average delay to diagnosis from the time of injury is usually many hours when using a selective approach, and the resultant morbidity and mortality are significant.^{9,10}

Our patient presented within 45 minutes of injury probably explaining the good outcome. Diagnostic evaluation of penetrating neck injury include lateral neck plain radiograph. Subcutaneous emphysema is often the most common presenting sign in significant injury to the aerodigestive tracts.¹¹ Patients with airway disruption, the surgical anatomy of the rupture creates air leak pattern on plain films. Patients who have laryngeal transection may also have gross, deep, and superficial cervicofacial emphysema, whereas patients who have tracheal rupture often present with massive mediastinal and deep cervical emphysema without pneumothorax.¹² Computed tomography has significant impact on selective management of penetrating neck injuries, it can accurately identify extrapulmonary air, directly visualize tracheal wall disruption and signs of transtracheal balloon herniation in intubated patients, and locate extratracheal tube position.¹³

The patient presented did not do any of the imaging studies because of the emergency nature of the presentation and constraint of ready availability of radiologist suites. The emergent treatment of all penetrating neck trauma requires (1) airway establishment, (2) blood perfusion maintenances, and (3) classification of the severity of the wound.

Early and rapid airway assessment followed by definitive airway protection is the key to neck trauma management. The airway must be secured, and any hemorrhage must be staunched and replaced with blood or blood products. In-line cervical stabilization is a safe method of stabilizing the cervical spine during intubation. The optimal technique for intubating a patient who has penetrating neck injuries is by direct laryngoscopy, although it has not been studied at length. It is not clear when a patient should be observed expectantly for impending airway compromise or when the patient should be intubated to avoid a situation in which the anatomy becomes so distorted as to make the procedure more difficult or impossible leading to an emergent surgical airway. These remain clinical judgments, clearly any patient in shock, with hypoxia, or with clear airway compromise needs immediate intubation. Rapid sequence induction using a short-acting paralytic agent is safe. In recent series of literature 100% of the 39 patients were successfully intubated using succinylcholine.¹⁴

Conclusion

Patient with gunshot injury to the neck may present with difficult airway to the anaesthetist. There is high risk of aspiration of blood and gastric content. It is therefore crucial that the anaesthetists are aware of other safer, faster, and easier approaches of managing airway.

References

1. Weiman D.S, Walker W.A, Brosnan K.M, Pate J.W, Fabian T.C . Combined tracheal and esophageal trauma from gunshot wounds South Med J 1996; 89(2): 208-219.
2. Kochhar I.K , Shukul V.K, Rahul S. Gunshot wound neck Indian J Otolaryngology and Head and Neck Surg 2004; 56(1):49-51.
3. Kakkar A, Kochhar L.A. Missile injuries of face and neck: our experience Indian J Otolaryngology Head Neck Surg 2000; 52(4):334-339.
4. Long V, Lo LJ, Chen YR. Facial reconstruction after complicated gunshot injury Chang Gung Med J 2002; 25:557-282.
5. Holler L, Grantcharova EP, Kattash M. Facial gunshot wounds: a 4-year experience J Oral Maxillofac Surg 2001; 59:277-282.
6. Demetriade D, Chahwan S, Gomez H, Falabella A, Velmahos G, Yamashita D. Initial evaluation and management of gunshot wounds to the face J Trauma 1998; 45:39-41.
7. Fogelman M.J, Stewart R.D. Penetrating wound of the neck Am J Surg 1956; 91:581-596.
8. Kelly JP, Webb WR, Moulder PV, et al. Management of airway truma: Tracheobronchial injuries Ann Thorac Surg 1985; 40(6):551-556.
9. Asensio JA, Berne J, Demetriades D, et al. Penetrating esophageal injuries: time interval of safety for preoperative evaluation – how long is safe? J Trauma 1997; 43(2):319-342.
10. Demetriades D, Theodorou E , Cornwell E, et al . Evaluation of penetrating injuries of the neck: prospective study of 223 patients. World J Surg 1997; 21(1):41-49.
11. Gomez-Caro AA, Ausin HP, Moradiellos Diez FJ. Medical and surgical management of noniatrogenic traumatic tracheobronchial injuries. Arch Bronconeumol 2005; 41(5):249-302.
12. Spencer JA, Rogers CE, Westaby S. Clinico-radiological correlates in rupture of major airways. Clin Radiol 1991; 43(6):371-378.
13. Chen JD, Shanmuganathan K, Mirvis SE, et al. Using CT to diagnose tracheal rupture. AJR 2001; 176(5):1273-1353.
14. Mandavia D, Qualis S, Rokos I. Emergency airway management in penetrating neck injury. Ann Emerg Med 2000; 35(3):221-226.

Mayer – Rokitansky Syndrome Type 1 With Karyotype XY Variant: A Case Study

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Abstract

A 24yr old lady, presented with inability to menstruate since birth (primary ammenorrhea). Patient achieved breast development, pubic and axillaries hair growths at the age of 11 years and 10 years respectively.

She became sexually active about 10 month prior to presentation following which she had coital laceration with pelvic heamatoma that required repair under anesthesia (EUA) at the University of Ilorin Teaching Hospital.

Physical examination revealed a young lady of height 1.6m with bilaterally symmetrical breast and everted nipples (Tanner stage IV), with normal pubic and axillary hair distribution and no inguinal swelling. Vaginal examination revealed normal female external genitalia, vaginal is about 3 – 4cm in length with blind ending, cervix was not palpable.

Transvaginal 2D Ultrasonography revealed absence of uterus with suspected pelvic kidney and normal ovaries bilaterally with evidence of follicular activities. Karyotype shows 46 XY (male) with normal Hormonal profile results.

Diagnostic laparoscopy revealed a clean pelvis with grossly normal ovaries bilaterally but no uterus.. Kidneys are in normal position (retroperitoneal).

Clinical diagnosis of Mayer – rokitansky – kuster – Hauser (MRKH) syndrome (as obtained in the present case) is evident by the history of amenorrhea since birth, post coital laceration, results of transvaginal Ultrasonography and finally laparoscopy

Patient was discharged home same day after diagnostic laparoscopy and counseled on the operative findings and the need for vaginoplasty and Assisted Reproductive Technology (ART) with surrogate mother.

Keywords: primary ammenorrhea, coital laceration, karyotype Xy variant

Introduction

Mayer – rokitansky – kuster – Hauser (MRKH) syndrome is characterized by congenital aplasia of upper 2/3rd of vagina with other mullerian (i.e. paramesonephric) duct abnormalities¹. It subdivided into two types: Type I (isolated) or Rokitansky sequence (OMIM 277000), and type II or MURCS association (Mullerian duct aplasia, Renal dysplasia and Cervical somite anomalies) (OMIM 601076). Type I consist of an isolated absence of the upper 2/3rd of the vaginal, uterus and fallopian tubes whereas type II is associated with other anomalies which include vertebral (scoliosis),cardiac, urologic (upper tract e.g. ectopic kidney) and otologic anomalies². Both present with normal female sexual development

The incidence is 1 per 4000 – 5000 female births². The majority of cases appear to be sporadic; however occurrence within family have also been described. The inheritance pattern seems to be autosomal dominant with incomplete penetrance and variable expressivity²; however precise gene has not been identified. It occurs mainly in female with no racial predisposition.

MRKH is a congenital disorder that may remain undiagnosed until adolescence, early adulthood or during marital life. Patient with MRKH syndrome may present with any of the following symptoms: primary amenorrhea; MRKH accounts for 15% of primary amenorrhea³, inability to have intercourse, infertility, renal malformation and vertebral anomalies.

Diagnosis is aided by imaging studies with ultrasonography, Magnetic Resonance Imaging (MRI), laparoscopy and pyelography.

Case Report

Miss AZ, a 24yr old lady, presented on account of inability to menstruate since birth. Patient achieved breast development and pubic with axillaries hair growth at the age of 11 years and 10 years respectively. There is no history of monthly abnormal pain, change in voice, hirsutism, galactorrhea, anosmia, migraine's headache, neck swelling and heat or cold intolerance. She became sexually active about 10 month prior to presentation following which she had coital laceration with pelvic heamatoma that required repair under

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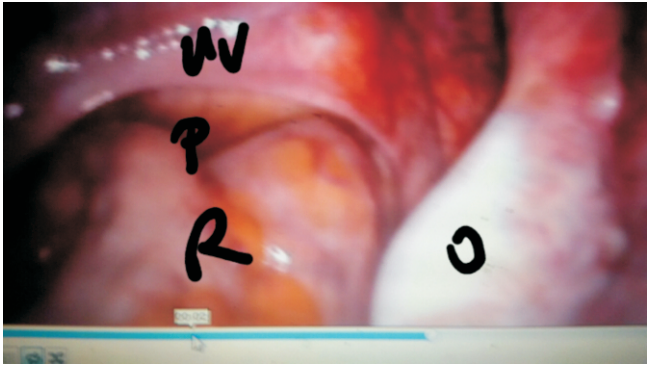


Fig. 1: Clean pelvis with absent uterus and fallopian tubes
UV: Uterovesical peritoneum
P: Pouch of Douglas
R: Rectum
O: Right ovary

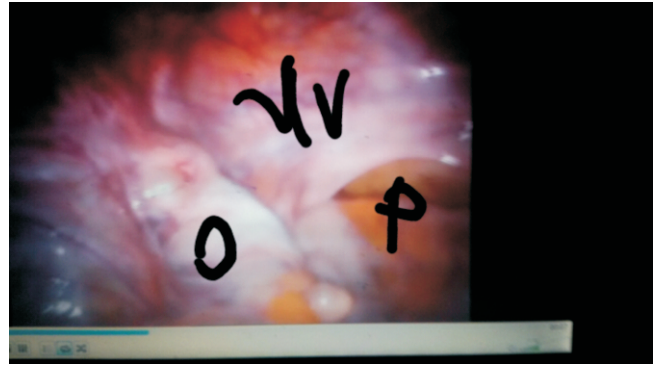


Fig.2: Clean pelvis with absent uterus and fallopian tubes
UV: Uterovesical peritoneum
P: Pouch of Douglas
O: Left ovary

anesthesia (EUA) at the University of Ilorin Teaching Hospital.

Physical examination revealed a young lady of height 1.6m with bilaterally symmetrical breast and everted nipples (Tanner stage IV), with normal pubic and axillary hair distribution and no inguinal swelling. Vaginal examination revealed normal female external genitalia, vaginal is about 3 – 4cm in length with blind ending, cervix was not palpable.

Transvaginal 2D Ultrasonography done revealed: Absence of uterus with suspected pelvic kidney and normal ovaries bilaterally with evidence of follicular activities. Karyotype shows 46 XY (male) with normal Hormonal profile results. Diagnostic laparoscopy revealed a clean pelvis with grossly normal ovaries bilaterally absent uterus. (Fig.1, 2). Kidneys are in normal position (retroperitoneal).

Patient was discharged home same day after diagnostic laparoscopy and counseled on the operative findings and the need for vaginoplasty and Assisted Reproductive Technology (ART) with surrogate mother.

Discussion

The uterus, cervix and upper 2/3rd of the vagina are formed from the fused caudal ends of the mullerian ducts; fallopian tubes develop from the unfused upper ends between the 8th-12th gestational weeks². A developmental defect occurring at this stage leads to agenesis of Mullerian structures. MRKH syndrome occurs due to abnormal development of the mullerian duct from exposure of the fetus to medication or maternal illness during gestational age of 44 – 48 days; however studies have not identified an association with maternal drug use or maternal illness³. Clinical diagnosis (as obtained in the present case) is evident by the history of amenorrhea since birth, post coital laceration, results of transvaginal Ultrasonography and finally laparoscopy which gives a better chance to

access internal reproductive organs and help in planning the definitive reconstructive surgery⁴.

Most reported cases MRI is used for more precision in defining the anatomical characteristic in MRKH, more than 2/3 noted to have mullerian rudiments in place of the uterus⁴ but this case did not, partially closed vaginal rudiment was also picked by USS in some patient⁴ but not in this case.

All reported cases of MRKH are of Karyotype XX but this case is of karyotype XY.

The surgical treatments of this condition to allow sexual functioning are; vaginoplasty, excision of uterus enlarge can also prevent endometriosis and resultant ovarian function impairment^{5, 6}. Laparoscopically, Vecchietti technique can now be performed with good success rate^{7, 8}. Intestinal neovaginal method has shown high degree of satisfaction to patients who had undergone it^{5,6}.

MRKH syndrome patient can become pregnant by having oocytes harvested, fertilized and implanted in a surrogate. The patient under review is yet to make decision on fertility issue

Conclusion

A case of 24 year old lady with inability to menstruate since birth, vaginal examination reveal a blind ending 3cm vaginal with no cervix palpable, USS and laparoscopy showed no uterus with well formed ovaries with karyotype XY

Reference

- 1) Sultan C, Beacon – lauber A, Philibert P. Mayer – Rokitansky – kuster – Hauser syndrome recent clinical and genetic findings. *Gynecol Endocrinol* 2009, 25(1) 8 – 11
- 2) Morcel K, Guerrier D, Watrin T, Pellerin I, Leveque J. [The Mayer – Rokitansky – Kuster –

Hauser (MRKH) syndrome Clinical description and genetics]. *J Gynecol Obstet Biol Reprod* 2008; 37(6): 539–49

3) Folich M, Pigem L, Konje JC. Mullerian agenesis etiology, diagnosis and management *Gynecol Surv* 2000; 55: 644–9

4) Fedele L, Dorta M, Brioschi D et al. Magnetic resonance imaging in Mayer – Rokintansky – Kuster – Hauser syndrome. *obstet Gynecol* 1990; 76(4): 593 – 6

5) Edmonds DK, Rose GL, Lipton MG, Quek J. Mayer Rokitansky – Kuster – Hauser Syndrome a review of 245 consecutive case managed by a multidisciplinary approach with vaginal dilators. *Fertil steril* 2012; 97(3): 686–90.

6) Carrard C, Chevret – Measson M, Lunel A, Raudrant D. Sexuality after sigmoid vaginoplasty in patients with Mayer – Rokintansky – Kuster Hauser syndrome. *Fertil Steril* 2012; 97(3): 691–6

7) Fedele L, Bianchi S, Frontino G, Fontana E, Restelli E, Brum V. The laparoscopic Vecchietti's modified technique in Rokistansky syndrome anatomic, functional and sexual long term results. *Am J Obstet Gynecol* 2008; 198(4): 377.e1 – 6

8) Folgueira G, Perez – Medina T, Martinez – Cortes L. Laparoscopic creation of a neovagina in Mayer – Rokitansky – Kuster – Hauser Syndrome by modified vecchietti's procedure. *Eur J, Obstet Gynecol Reprod Biol* 2006; 127(2): 240–3

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