

**Short communication report****MICROORGANISMS ASSOCIATED WITH THE URINOGENITAL SYSTEM OF VESICO VAGINAL FISTULA (VVF) PATIENTS IN NORTH WESTERN NIGERIA.**

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Vesico Vaginal Fistula (VVF) is a devastating childbirth injury that results in the abnormal fusion between the urinary bladder and the vagina. It is the commonest type of gynecological abnormality (fistula) in the developing countries, which Andrew (1999) described as an old menace to mankind and a constant source of misery to the affected patient. Recent estimates suggest that 3 million women live with fistula, mainly in sub-Saharan Africa and South Asia (Wall 2006).

The commonest cause of VVF is a prolonged and obstructed labour in pregnant women during delivery. Other causes of the problem include cephalopelvic disproportion, a situation where the head of the baby is too big to pass through the birth canal as well as malpresentation and malposition of the baby, which is an abnormal position maintained by the baby at the time of labour which leads to difficulty of the head to come out first. It is common in communities where teenagers are given out in marriage early in life. VVF is characterized by uncontrolled dripping of urine down the legs, resulting in the constant wetting of the clothes and production of an irritating stench. Available evidence from the United States and the United Kingdom revealed that 70% of fistulae are sequelae of pelvic surgery (Hadley 2002), unlike in Africa where about 90 % of fistulae are caused by obstructed or prolonged labor (Danso *et al.* 1996; Hadley 2002)

In Nigeria, about 80% of VVF cases are due to unrelieved obstructed labour during childbirth which is directly related to the custom of early marriage (Ojanuga & Ekwempu 1999). In view of the fact that VVF is associated with urogenital infections and ammonia dermatitis that often result to severe psychosocial trauma, this investigation was made aimed at studying the microorganisms in patients presenting with urogenital fistulae in VVF units at Sokoto, Gusau and Birnin Kebbi, north-western Nigeria.

**High Vaginal Swabs**

A total of 100 high vaginal swabs (HVS) were collected from patients at the VVF centers in Sokoto, Gusau and Birnin Kebbi, Nigeria. Each swab was transferred into 10 ml of sterile distilled water and serially diluted to  $10^{-4}$  and the diluents inoculated onto sarrbouraud's dextrose agar.

**Urine samples**

100 samples of urine were collected using sterile syringes from the ascending tube before reaching the urine bag. The urine

was dispensed in universal bottles, covered and spine at 10 000 rpm after which the supernatant was decanted and the sediment inoculated on Chocolate and McConkey agar media and incubated at 37 °C for 24 hr.

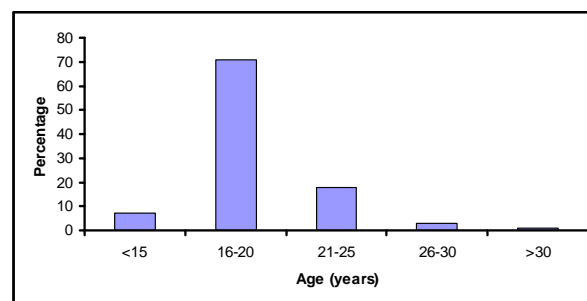
**Analysis**

The axenic cultures were analysed using microscopy and biochemical analysis. Indole and H<sub>2</sub>S production were carried out to identify the microorganisms according to the methods of Barrow & Feltham (1993). Questionnaires were administered to all the 100 patients and analysed with respect to age group and the assistance they received during delivery.

Most of the microorganisms that were isolated belong to the Enterobacteriaceae family. A total of eight were isolated made up of *Escherichia coli* (Migula 1895) Caslellani & Chalmers 1919 from 99 patients, *Enterobacter cloacae* (Jordan 1890) Hormaeche & Edwards 1960 in 81 patients followed by *Corynebacterium diphtheriae* (Kruse 1886) Lehmann & Neumann 1896 and *Proteus vulgaris* Hauser 1885 that were isolated in 44 and 4 patients respectively. Lowest infections were due to *Pseudomonas aeruginosa* (Schroeter 1872) Migula 1900 encountered in only 14 patients (Table 1).

**TABLE 1. OCCURRENCE OF MICROORGANISMS IN PATIENTS WITH VVF.**

Microorganism	Frequency (%)
<i>Candida albicans</i>	32
<i>Citrobacter amalonaticus</i>	23
<i>Corynebacteria diphtheriae</i>	44
<i>Enterobacter cloacae</i>	81
<i>Escherichia coli</i>	99
<i>Klebsiella pneumoniae</i>	22
<i>Proteus vulgaris</i>	40
<i>Pseudomonas aeruginosa</i>	14

**FIG 1. INCIDENCE OF VVF WITH AGE AT FIRST PREGNANCY IN NORTH WEST NIGERIA**

The growth of the bacterial colonies is presented in Table 2 while the results of the questionnaire response summarizing the

different types of influence contributing to VVF menace is presented in Table 3. Fig. 1 presents the distribution of VVF according to the age of the patients.

**TABLE 2: MEAN COLONY FORMING UNITS OF MICROORGANISMS ISOLATED FROM VVF PATIENTS**

Microorganism	Colony forming units/ml
<i>Candida albicans</i>	12 X 10 <sup>4</sup>
<i>Citrobacter amalonaticus</i>	15 X 10 <sup>4</sup>
<i>Corynebacteria diphtheriae</i>	49 X 10 <sup>4</sup>
<i>Enterobacter cloacae</i>	18 X 10 <sup>4</sup>
<i>Escherichia coli</i>	36 X 10 <sup>4</sup>
<i>Klebsiella pneumoniae</i>	45 X 10 <sup>3</sup>
<i>Proteus vulgaris</i>	21 X 10 <sup>4</sup>
<i>Pseudomonas aeruginosa</i>	14 X 10 <sup>4</sup>

**TABLE 3 TYPE OF ASSISTANCE THAT CONTRIBUTED TO VVF DURING DELIVERY**

Assistance rendered	Percentage
Patient's mother	17.0
Mother-in-law	35.0
Traditional Birth Attendant	3.0
Trained worker	0.0
Self delivery	16.0
Friend	12.0
Clinic	9.0
Husband	3.0
Other	5.0
TOTAL	100.0

The results from this study indicate that VVF patients from the present study areas are infected with various species of microorganisms, majority of which belong to the same group earlier reported for hospitalized patients (Barrow & Feltham 1993), further reaffirming the results of Kunin *et al.* (1980), Agba *et al.* (2002) and Dalela *et al.* (2003) that VVF patients are prone to microbial colonization. Ghatak (1992) conducted a retrospective study in Sokoto and observed high urinary tract infection of 26 %, only next to pelvic abnormality. It was not possible to comment on the situation in the different areas where the samples were drawn because of the small sample size. However, several reports (Ojanuga 1991; Ojanuga & Ekwempu 1999; Wall *et al.* 2004) indicated that it is a big but neglected problem in northern Nigeria.

The results further confirmed that majority of the patients are young and inexperienced, aged between 16-20 yr old. The high microbial colonization of the patients could be attributed to their low level of personal hygiene arising from their inexperience to keep themselves clean. The mean age at which girls are married out in the area is 13 yr (Ibrahim *et al.* 2000). Another

contributing factor to the colonization could be the non-removal of the catheter (Warren 2001).

The influence of mother-in-law as a contributing factor in VVF complication is high in our study. This could be the result of absence of alternative medical health care facility particularly in the rural areas. Ibrahim *et al.* (2000) studied VVF patients in Sokoto, the same region where this study was conducted and reported that 77% did not receive antenatal care. The same study reported that only 6% of the patients could read or write in English but more than 80% had Quranic education, indicating that the control of VVF in the area is not possible without integrating maternal and child health (MCH) education in the curriculum of Quranic schools. To be sure of success, special health education programs on maternal health should also be extended to the religious leaders, a suggestion earlier made by Ibrahim *et al.* (2000), in addition to advocacy for free antenatal care and delivery services at the primary and secondary levels. More personnel should be trained to bring MCH services closer to the grassroots. Above all, special attention should be given to the socio-cultural barriers to good reproductive health among women by legislating against the practice of very early pregnancy and childbirth in very young women which is a direct consequence of early marriage. Of the different likely causes of VVF, the influence of orthodox practioners in the complication was low, confirming the observation earlier made by Ghatak (1992) in the area.

Besides the severe social consequences from the irritating stench of urine that often result in ostracizing the affected women from the community, Edwards (1994) reported that overlooking the presence of pathogenic microorganism in VVF patients may lead to further complications such as pyelonephritis and pelvic inflammation.

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