

## An Eleven Year Review of Failed Female Sterilisation in Ile-Ife, Nigeria.

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### Abstract

**Context:** Female sterilisation is the most widely used method of fertility control in the world. Pregnancy following the procedure is often associated with significant morbidity due to delay diagnosis and management.

**Objective:** The aim of this study is to examine the peculiarities and factors leading to failed female sterilisation in Ile-Ife Nigeria.

**Study Design, Setting And Subjects:** A descriptive study of all cases of pregnancy following bilateral tubal ligation encountered at the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria from October 1 1987 to September 30 1998.

**Main Outcome Measures:** Incidence and crude failure rate of female sterilisation, types and methods of sterilisation, types of pregnancy and sterilisation-pregnancy interval.

**Results:** During the period of study, there were 16,847 births, 533 cases of voluntary surgical contraception and 4 patients with pregnancy following bilateral tubal ligation. The incidence of female sterilisation was 31.5 per 1000 births while the crude failure rate was 7.5/1000. Postpartum and interval voluntary surgical contraception were done in 91.4% and 8.6% respectively. In all the cases of failed female sterilisation, Pomeroy method of female sterilisation was employed and they were all done in the post partum period, with the sterilisation-pregnancy interval ranging from 14 to 42 months.

**Conclusion:** This study advocates the postponement of tubal sterilisation till 6 weeks postpartum in order to reduce the failure rate and the use of techniques that involve burying the outer ends of the fallopian tubes in the broad ligament if sterilisation is done in the immediate puerperium.

**Key Words:** Failed Female Sterilisation; Contraception; Ectopic Pregnancy. [Trop J Obstet Gynaecol, 2001, 18: 8-11]

### Introduction

Female sterilisation is the most widely used method of fertility control in the world today<sup>1</sup>. The increasing trend towards smaller families in developed countries coupled with the availability of relatively simple and safe methods of sterilisation, increasing resistance to prolonged use of oral contraceptives and fundamental changes in societal attitude towards sterilisation as an elective contraceptive method have led to an increasing demand for the method over the less permanent and less invasive non-surgical contraceptive techniques<sup>2,3,4</sup>. In contrast, female sterilisation is practised to a limited extent in developing countries because of aversion to operative procedures and the permanent nature of the method<sup>3,5</sup>. While the prevalence of sterilisation is as high as 31.3% in married women of reproductive age in United States<sup>1</sup>, it has been very low in Africa, with a figure as low as 0.58% in Nigeria<sup>3</sup>.

An important and obvious concern regarding the efficacy of female sterilisation is the subsequent occurrence of intra-uterine and ectopic pregnancies. Intra-uterine pregnancies are often unexpected and unwanted while ectopic pregnancy after sterilisation can be fatal. Pregnancy occurring after a sterilisation technique (excluding luteal phase pregnancy) constitutes a failed sterilisation. This phenomenon could bring regret, unhappiness and dissatisfaction to the patients, and embarrassment as well as litigation to the gynaecologist. This paper reviews cases of failed sterilisation as seen in Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria. The frequency of occurrence of failed female sterilisation,

the factors responsible and ways to improve the outcome of female sterilisation in this region are discussed. The information would assist other gynaecologists in their choice of method and the timing of voluntary surgical contraception procedures in the developing countries.

### Material and Methods

This is a review of all cases of pregnancy following bilateral tubal ligation encountered at the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria, from October 1<sup>st</sup> 1988 to September 30<sup>th</sup> 1999. The personal data, hospital numbers of all patients with female sterilisation and the diagnosis of failed sterilisation were traced from the hospital records of both Wesley Guild Hospital and Ife State Hospital. The case notes of these patients were subsequently obtained from the medical records of the Teaching Hospital. Information such as the age, parity, indication for sterilisation, year of sterilisation, type of bilateral tubal ligation, methods employed, sterilisation-pregnancy interval, type of reported pregnancy and cadre of staff involved in the previous tubal ligation were extracted from the case notes and collated. In addition, the total number of voluntary surgical contraception and the total number of deliveries within the studied period were obtained from the medical records.

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**Results**

During the period of study, there were 16,847 births and 533 (five hundred and thirty-three) voluntary surgical contraception procedures were performed. Thus the incidence of female sterilisation during the period was 3.15% or 31.5 per 1,000 births. During the period, 4 cases of pregnancy following bilateral tubal ligation were recorded, giving a crude failure rate of 0.75% or

(7.5/1,000). Post partum and interval tubal ligations were done in 487 (91.4%) and 46 (8.6%) of the patients respectively. The features of the four patients are summarised below (Table 1). The four cases had their tubal ligation done in our Teaching Hospitals and segments of fallopian tubes were confirmed by histology to have been resected in all of them.

**Table 1**

**Pregnancy After Tubal Sterilisation in ObafemiAwolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria.**

CHARACTERISTICS OF THE PATIENTS	PATIENT 1	PATIENT 2	PATIENT 3	PATIENT 4
<i>Name</i>	A.O.	A.T.	A.O.	A.T.
<i>Hospital Number</i>	51854	121974	122911	124591
<i>Age</i>	30 years	37 years	40 years	38 years
<i>Parity</i>	Para 5 5 alive	Para 4 4 alive	Para 8 8 alive	Para 4 4 alive (1 set of twins)
<i>Occupation</i>	Petty Trading	House Wife	Petty Trading	Teaching
<i>Indication for Tubal Sterilisation</i>	Completed family size	Completed family size	Completed family size	Completed family size
<i>Date of Sterilisation</i>	March 1988	August 1991	December 1993	November 1995
<i>Type of Sterilisation</i>	Post Partum	Post Partum	Post Partum	Post Partum at caesarean section
<i>Method of Sterilisation</i>	Pomeroy	Pomeroy	Pomeroy	Modified Pomeroy (Parkland)
<i>Type of Pregnancy Failure</i>	Ectopic Pregnancy	Ectopic Pregnancy	Intra-Uterine Pregnancy	Ectopic Pregnancy
<i>Sterilisation – Pregnancy Interval</i>	20 months	14 months	42 months	33 months
<i>Date of Presentation</i>	June 1990	October 1993	September 1994	August 1998
<i>Hospital</i>	W.G.H.	W.G.H.	I.S.H.	W.G.H.
<i>Diagnosis on Admission</i>	Pelvic Inflammatory Disease	Perforated Appendix	USS Confirmation of Pregnancy; 22 weeks gestation	Ruptured Ovarian Cyst ?Ectopic Pregnancy
<i>Indication for Laparotomy</i>	Pelvic abscess with severe anaemia	Perforated Appendix	-	Acute Abdomen and Shock
<i>Pregnancy Outcome/Findings at Laparotomy</i>	Ruptured left ectopic pregnancy	Leaking Ectopic on the tube (right)	SVD of a live female baby on 21.1.95. Recanalization of the fallopian tube noted at the second BTL	Ruptured left fimbria ectopic pregnancy.
<i>Morbidity</i>	Severe anaemia and shock	-	Unplanned childbirth	Severe anaemia
<i>Mortality</i>	-	-	-	-
<i>Cadre of staff involved at Sterilisation</i>	Senior Registrar	Registrar	Senior Registrar	Senior Registrar

W.G.H Wesley Guild Hospital, Ilesa, Nigeria

I.S.H. Ife State Hospital, Ile-Ife, Nigeria

USS Ultrasonography

SVD Spontaneous Vaginal Delivery

## Discussion

Sterilisation of women, by surgical occlusion of the fallopian tubes is the most widely accepted of all modern family planning measures, being currently used by more than 100 million women of reproductive age worldwide<sup>6</sup>. Despite this demand for sterilisation, its acceptance in Nigeria has been very low<sup>3,5</sup>. This is reflected in this study, with a frequency of 31.5 per 1,000 which however showed a considerable improvement over the 5.8 per 1,000 births reported in the same institution in 1991<sup>3</sup>. This slight increase in demand may reflect an increasing acceptance of this procedure by the female population, a result of the education and awareness programmes being directed at combating the unacceptably high maternal mortality ratios in Nigeria. News of pregnancy after sterilisation may discourage others from accepting the procedure.

The crude failure rate of 7.5 per 1,000 births or 0.75% in this study is high, being much higher than the 0.2 percent commonly reported<sup>7</sup>. In developing countries, where the use of surgical sterilisation is low, a failure rate as high as 0.75% may discourage new clients. Failed contraception occurred between 14 and 42 months in the 4 patients that were seen during the study period. The only case of intra-uterine pregnancy occurred at 42 months after the sterilisation, while those pregnancies leading to ectopic pregnancy occurred at earlier periods of 14, 27 and 33 months respectively. The mean time intervals from sterilisation to conception is variable<sup>8,9</sup> but data collected by Prystowsky and Eastmen (1955)<sup>10</sup> revealed 49.3 months for four ectopic pregnancies and 23.3 months for ten intra-uterine pregnancies. Brenner *et al* 1977<sup>11</sup> and Wolf *et al* 1980<sup>12</sup> reported time intervals of 17 months to 8 years and 14 weeks to 14 years respectively for ectopic pregnancies.

The early studies on sterilisation – conception interval seemed to suggest a longer interval for ectopic pregnancies than intra-uterine pregnancies<sup>8,9</sup>. Though the number of failures following sterilisation in this study is small, the mean interval for ectopic pregnancy in this study was 24.6 months and 42 months for intra-uterine pregnancy. This showed a shorter time interval for ectopic pregnancies and probably a longer time interval for intra-uterine pregnancy when compared with data from Prystowsky and Eastmen<sup>10</sup>.

The incidence of ectopic pregnancy following sterilisation in this study was 0.56% and this is low when compared with figures of 5.1%, 7.7% and 16% reported from Canada<sup>13</sup>, North Carolina<sup>8,9</sup> and Singapore<sup>14</sup>. Though early investigators have suggested a subsequent risk of ectopic pregnancy after sterilisation; this risk should not be high. The incidence of ectopic pregnancy is high in this community<sup>15</sup>, thus sterilisation procedures contribute little to cases of ectopic pregnancy in our environment. Incomplete occlusion of the fallopian tubes at the time of sterilisation, the method or technique employed and the timing of sterilisation may explain the occurrence of ectopic pregnancy in this study.

Postpartum tubal sterilisation with Pomeroy and modified Pomeroy (Parkland) techniques were employed in the four cases of failed sterilisation and indeed in all cases of female sterilisation in our unit during the period. Postpartum sterilisation were not favoured by many authorities<sup>16</sup> because of higher incidence of failure rate from recanalisation. In Nigeria, pregnancy and delivery time offers the best opportunity for women to make contact with appropriate health facility where reproductive health education, counselling and specific therapeutic procedures such as tubal sterilisation can be provided. Statistics have suggested that less than 20% of women in Nigeria benefit from this opportunity<sup>17</sup>. This may justify the higher preponderance of postpartum tubal sterilisation over interval sterilisation in our unit. Pomeroy and Parklands techniques of tubal sterilisation have been used in this unit probably because of its simplicity and the ease with which the procedures are done. Moreover the outcome of Pomeroy and modified Pomeroy (Parklands) techniques have not been shown to be quite different from other open laparotomy techniques such as Irving, Cookies and Uchida. Rather, greater morbidity has been associated with these methods which theoretically should give better outcome in terms of failure rate<sup>18</sup>. These tubal sterilisation techniques have existed for a long time, with many being developed in 1970s, but have had only minor modification since then<sup>6</sup>. Laparoscopic tubal sterilisation using thermal coagulation, spring loading techniques, clips and Falope rings have not been well practised in this country.

The main indication for tubal sterilisation in the four cases encountered in this study was completed child bearing. While tubal sterilisation has been described as a safe and effective method of birth control and a potent tool of safe motherhood on the long run, pregnancies following tubal sterilisation may be very hazardous, almost leading to mortality in the three patients who presented with ectopic pregnancy. In these cases, a diagnosis of ectopic pregnancy was not suspected by the casualty officers because of the history of previous tubal ligations and one of them was admitted into a surgical ward with a diagnosis of perforated appendix while the other two were admitted into gynaecological wards for pelvic inflammatory disease and ruptured ovarian cyst. These led to delay in instituting appropriate management and therefore increased morbidity. Delay and wrong diagnosis of ectopic pregnancy and unsuspected intra-uterine pregnancy are therefore threats to maternal life following female sterilisation.

Although complications are rare following tubal sterilisation, failed sterilisation does occur and seem to be more common where tubal ligation is carried out in the immediate puerperium<sup>19</sup>. It may therefore seem reasonable to postpone tubal sterilisation for 6 weeks after delivery in order to reduce the failure rate. Failure rate of interval tubal sterilisation using the Pomeroy and Parklands technique is low<sup>15,19</sup>; further refinement of these techniques may be necessary in order to reduce the failure rate further.

Adoption of methods that involve burying the outer ends of the fallopian tubes in the broad ligament in the immediate postpartum period, especially in the tropics where pregnancy and delivery are the catchment periods of the women, may be an acceptable option in reducing the failure rate of sterilisation in spite of the relative technical difficulties of these alternatives.

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