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RISK FACTORS AND MANAGEMENT OUTCOME OF INTRAUTERINE ADHESION IN A CONSTRAINED SOCIO-ECONOMIC ENVIRONMENT: A 10-YEAR REVIEW IN THE UNIVERSITY OF CALABAR TEACHING HOSPITAL, CALABAR

Charles Njoku[1], Cajethan Emechebe[2]*, Edu Eyong[3], Boniface Ago[4] and John Ekabua[5]

[1]Senior Lecturer in Obstetrics and Gynaecology, University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria.
[2]Lecturer in Obstetrics and Gynaecology. Department of Obstetrics and Gynaecology, University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria.
[3]Lecturer in Obstetrics and Gynaecology. Department of Obstetrics and Gynaecology, University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria.
[4]Senior Lecturer in Obstetrics and Gynaecology, University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria.
[5]Professor in Obstetrics and Gynaecology. Department of Obstetrics and Gynaecology, University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria.

***Corresponding Author: Dr. Cajethan Emechebe**

Lecturer in Obstetrics and Gynaecology, University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria.

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ABSTRACT

Background: Intrauterine adhesion remains an important cause of menstrual abnormalities and infertility in our environment. **Objectives:** This study was undertaken to review the risk factors and management outcome of intrauterine adhesion in our hospital. **Methods:** This retrospective cross-sectional study of cases of intrauterine adhesion managed at UCTH, Calabar was carried out over a 10-year period, from January 1, 2005 to December 31, 2014. The data were analyzed using the Gold Stat Pac software packages Statpac Inc. Minneapolis, USA and presented in tables in simple percentages. **Results:** Intrauterine adhesion constituted 3.2% of all gynecological operations during the study period. Most patients belonged to age group of 30-34 (43.6%); para 1-2 (50.0%); married (77.4%) and with secondary education (48.4%). The common risk factors were history of termination of pregnancy/incomplete abortion (33.9%) and puerperal sepsis (12.9%). Hypomenorrhea and infertility were the most common mode of presentations in 58.1% and 54.8% of cases respectively. All the patients managed over the period had dilatation and blind adhesiolysis under anaesthesia and restoration of normal menstruation was achieved in 48.4% of the patients while the pregnancy rate was 29.0%. **Conclusion:** Intrauterine adhesion is relatively common due to complications of pregnancy and delivery. Therefore, prevention includes provision of contraceptive advice and early evacuation of products of conception with manual vacuum aspiration (MVA) with care where uterine curettage must be done. Also, hysteroscope and training should be made available for hysteroscopic adhesiolysis for better treatment outcome.

KEYWORDS: intrauterine adhesion, infertility, asherman's syndrome, amenorrhoea, Calabar.

INTRODUCTION

Intrauterine adhesion is an acquired uterine condition characterized by formation of scar tissue inside the uterus.[1] It occurs when trauma to, and or infection of the endometrial lining triggers the normal wound healing process of inflammation and repair, forming fibrous tissues of varying thickness leading to adhesion formation.[2] Intrauterine adhesion tends to persist long after the original trauma has healed and are usually avascular.[3] This trauma and or inflammation depending on severity may lead to partial or total destruction of the endometrium,[4] with consequent partial or total obliteration of the endometrial cavity. This accounts for its wide range of symptoms, ranging from menstrual abnormalities, infertility, habitual abortion, placenta praevia, accrete and postpartum haemorrhage.[5, 6]

The incidence of intrauterine adhesion varies from community to community particularly common where dilatation and curettage is still commonly being used as a method of pregnancy termination.[7] The incidence is thought to be a reflection of induced abortion in a community and could vary based on physician awareness of its varied clinical presentation.[8] It accounted for 19% of secondary infertility from secondary amenorrhoea in Lagos University Teaching Hospital (LUTH), making up of 4.4percent of new gynaecologic clinic attendance at the same center[9] and 1.3% of all cases seen at the Jos University Teaching Hospital (JUTH)[10] and 3.7% of

infertility in Benin.[11] However, the global incidence of the condition is said to be steadily increasing.[12]

The predisposing factors to intrauterine adhesion include over-vigorous curettage following delivery or abortion, caesarean section, manual removal of the placenta, myomectomy and metroplasty.[7,13,14] Pregnancy related endometrial curettage have been shown to account for 90% of intrauterine adhesions.[2] This is the commonest form of intrauterine adhesion and it is described originally by Asherman in 1948[15], hence the name Asherman's Syndrome. Other causes are infective and non-traumatic factors include puerperal sepsis, genital tubercoulosis and schistosomiasis.[3,7,13,16] However, the basic aetiological factors are trauma and infection.[13] The risk of developing intrauterine adhesion from dilatation and curettage is 25% in 2-4 weeks after delivery.[17] Dilatation and curettage also lead to 30.9% procedures of missed abortion and 6.4% of incomplete abortion.[2] The risk of intrauterine adhesion increases with the number of dilatation and curettage performed, after a single termination of pregnancy, the risk is 16%, however after three or more, the risk is 32%.[18] Each case of intrauterine adhesion is different, so a cause must be determined by a case-by-case basis.[18] The clinical features of intrauterine adhesion include menstrual abnormalities such as secondary amenorrahoea, cyclical hypomenorrhoea and dysmenorrahoea. Secondary infertility, habitual miscarriage, abnormally adherent placenta and fetal malpresentation are other clinical features.[1,14, 19, 20]

The contribution of intrauterine adhesion to infertility in our environment is reportedly high in some centres and not yet significant in other centers.[10] Hysteroscopy is not widely available in most developing countries and traditional blind division of adhesions is still widely practiced. With rising incidence of induced abortion and frequency of post-partum infection from prolonged labour[9,21], the management of intrauterine adhesion will continue to pose a challenge to the gynaecologist who needs to be continually aware of this condition. Therefore, this study was conducted to highlight the risk factors and management outcome of intrauterine adhesion at UCTH, Calabar. It is expected that the findings will help to make recommendations for prevention and improve the management outcome of intrauterine adhesion.

MATERIALS AND METHODS

This is a retrospective study covering a period of 10 years from January 1st 2005 to December 31st, 2014. The case notes of 62 (79%) out of the 88 patients managed for intrauterine adhesion at the UCTH, Calabar during this period were retrieved from the Medical Records Department of the hospital and relevant data extracted from them. They include age, parity and presenting symptoms which include secondary amenorrahoea, infertility and menstrual abnormalities (hypomenorrhoea, amenorrhoea, dysmenorrheal and oligomenorrhoea). History of miscarriages, dilatation and curettage for incomplete abortion, termination of pregnancy and complications of delivery such as postpartum heamorrhage, retained placenta, manual removal of placenta and puerperal sepsis. Past medical history of pelvic inflammatory diseases, tuberculosis and schistosomiasis were also obtained.

Diagnosis of intrauterine adhesions were made using hysterosalpingograph (HSG) and all the patients had dilatation and blind adhesiolysis under anaesthesia followed by immediate insertion of Copper-T intrauterine contraceptive device or paediatric Foleys catheter and administration of combined estrogen/ progesterone therapy (conjugated equine estrogen 1.25 mg daily for 25 days and progestogen daily from day 16 of the cycle to day 25) for 3months. The derived data were analyzed using the Gold Stat Pac software packages Statpac Inc. Minneapolis, USA and presented in simple percentages.

RESULTS

There were a total of 2,784 gynaecological operations over the period under review and 88 cases of intrauterine adhesion were managed giving an incidence of 3.2% of all gynaecological operations. The mean age was 30.07 years $\pm$ 5.32 (S.D.), with a range of 15-42 years. The mean parity was 1.7$\pm$ 1.45 (S.D), with a range of para 0 - 6. Table 1 shows the Socio-demographic characteristics of the study group. Majority of the patients with intrauterine adhesion belonged to the age group of 30-34 (43.6%); para 1-2 (50.0%); married (77.4%) and with secondary education (48.4%).

Table 2 shows the risk factors in patient with intrauterine adhesion during the study period. The commonest risk factor for intrauterine adhesion is the history of termination of pregnancy/incomplete abortion (33.9%). Out of 33 patients (53.2%) who gave an antecedent history of endometrial curettage, termination of pregnancy accounted for 33.9%, incomplete miscarriage with evacuation (12.9%), post partum curettage (4.8%) and missed abortion (1.6%). Six (9.7%) cases followed caesarean section, 8 (12.9%) followed puerperal sepsis and myomectomy was 2(3.2%).

Table 3 shows that the commonest menstrual abnormality was hypomenorrhoea in 58.1% of the patients followed by secondary amenorrhoea in 33.9% of case. Infertility was the complaint in 54.8% of the patients and it is the second commonest presentation among the patients.

Table 4 shows the outcome of treatment. Correction of menses was seen in (48.4%) of the patients; the pregnancy rate was 29.0%; while (19.4%) had no change from the treatment. A total of 24.2% of the patients had slight improvement in the menstrual complaints but not normal menstruation.

Table 1: The Sociodemographic characteristics of the patients

Characteristics	Number	Percentage	Cumulative percentage
Age (Years)			
15-19	4	6.5	6.5
20-24	8	12.9	19.4
25-29	11	17.7	37.1
30-34	27	43.6	80.7
35-39	10	16.1	96.8
40-44	2	3.2	100.0
Parity			
0	19	30.7	30.7
1-2	31	50.0	80.7
3-4	11	17.7	98.4
≥5	1	1.6	100.0
Marital status			
Married	48	77.4	77.4
Single	11	17.7	95.1
Divorced	3	4.9	100.0
Educational status			
No formal education	1	1.6	1.6
Primary	19	30.6	32.2
Secondary	30	48.4	80.6
Tertiary	12	19.4	100.0

Table 2: Risk Factors of Uterine Synaechia.

Antecedent Event	Number	Percentage
Termination of pregnancy/ abortion	21	33.9
Peurperial sepsis	8	12.9
Incomplete miscarriage with evacuation	8	12.9
Caesarean Section	6	9.7
Manual Removal of placenta	5	8.1
Pelvic inflammatory disease (PID)	4	6.5
Postpartum curettage	3	4.8
Myomectomy	2	3.2
Missed miscarriage with evacuation	1	1.6
Unspecified	4	6.5
Total	**62**	**100.0**

Table 3: Sympomatology.

Symptoms	Number	*Percentage
Hypomenorrhoea	36	58.1
Infertility	34	54.8
Secondary Amenorrhoea	21	33.9
Dysmenorrhoea	3	4.8
Recurrent pregnancy loss	2	3.2
Oligomenorrhoea	1	1.6

*****percentage >100 because of multiple symptoms.

Table 4: Treatment Outcome.

Outcome	Number	Percentage
Achieve normal menstruation	30	48.4
Achieved pregnancy	18	29.0
Slight improvement in menstrual flow	15	24.2
No change in the condition	12	19.4

* The percentage is >100 due to multiple outcome in some patients.

DISCUSSION

The prevalence of intrauterine adhesion among gynaecological surgery in this study is 3.2%. This is higher than 1.3% reported in Ilorin[22] and 1.7% in Abuja[23], but lower than 4.3% reported in Lagos[21], 6.7% in Jos[10] and 8.1% in Maiduguri.[24] The relatively high prevalence of intrauterine adhesion reported in this study may be due to high incidence of induced abortion, puerperal sepsis and high caesarean section rate in association with prolonged/obstructed labour. The global incidence of intrauterine adhesion is difficult to determine and often asymptomatic.[22] This is because of the variation in diagnostic criteria, abortion laws and the practices in different countries, as well as difference in aetiological risk factors such as high incidence of genital tuberculosis in some countries.[2] The findings on age distribution and parity among the patients studied agreed with previous reports where the majority of their patients were as well in their third decades of life and low parity.[9,24] This group of patients may exhibit better health seeking behavior than their counterpart in the extreme of ages for reproduction.

The diagnosis of this condition is usually suggested by the history, which highlights the aetiological events and the clinical features. Confirmation of diagnosis is made with hysterosalpingography, hysteroscopy or both, Sonohysterography and Magnetic Resonance Imaging.[1, 21-23] Only hysterosapingography is employed in this study because of the unavailability of the other three diagnostic modalities in our centre. Hysterosalpingographic diagnosis of intrauterine adhesion is an acceptable modality, although hysteroscopy has been reported to be superior to it in confirming diagnosis.[2,12] The direct visualization of the uterus via the hysteroscope enables a true picture of the presence, extent and degree of adhesions to be addressed. Hysteroscopy also has the added advantage that it can be used for treatment at the time of diagnosis which has been shown to improve prognosis.[1,22] Sonohysterography and Magnetic Resonance Imaging[24] are recent tools in the diagnosis of intrauterine adhesion and are yet to become widely available modalities especially in developing countries.

The role of trauma to the pregnant or recently pregnant uterus in intrauterine adhesion is evidently demonstrated by the fact that majority of patient in this study belonged to this category. This included cases following caesarean section, dilatation and curettage for incomplete abortion, termination of pregnancy, missed abortion and post partum haemorrhage as well as manual removal of the placenta and ruptured uterus. Dilatation and curettage for incomplete abortion, termination of pregnancy, missed abortion and posts partum haemorrhage were the most common aetiological factor in this study. This is similar to the findings of other workers.[2,10,21] Caesarean section was a recognized cause of intrauterine adhesion in this study accounting for 9.7% of cases. This is different from the findings of Ogedengbe et al[21] in Lagos, but much higher than the 2% found by Schenker and Marbalioth[2] in a review of literature. Genital infection following caesarean section has been suggested as the causative factor.[21] Genital tuberculosis is a rare non-traumatic cause of intrauterine adhesion. No case of this condition as a cause of intrauterine adhesion was recorded in this study.

The commonest presenting symptoms of intrauterine adhesion identified in this study were menstrual disorder which was seen in 92% of patients. Ogedengbe et al[21] and Olarewaju[7] found similarly high figures of 89% and 81.8% respectively. This is also collaborated by other studies.[1,12] Intrauterine adhesion is also often expressed as infertility as seen in 54.8% of patients in this series which is similar to study by Olarewaju and Otubu.[10]

The treatment of intrauterine adhesion is aimed at breaking the intra-uterine adhesions, regeneration of the endometrium and prevention of subsequent reformation of the adhesions, all geared towards restoration of normal menstruation and or fertility.[1,14] Available options for intra-uterine adhesiolysis include blind breaking of intra-uterine adhesions and hysteroscopic directed vision with microscissor or laser which has better prognosis.[1,2] The endometrium is kept apart with either an intra-uterine contraceptive device or a paediatric Foley's catheter for 3 months and 10 days respectively.[9,21] Endometrial regeneration from the undamaged glandular basalis is enhanced with use of cyclical hormone therapy with estrogens and progestogens.[9,19] The method of treatment of intrauterine adhesion from this study was dilatation and blind adhesiolysis under anaesthesia and immediate insertion of an intra-uterine device followed by hormonal therapy in order to encourage endometrial regeneration. This is similar to the practice in some centres without hysteroscopic facility and has been shown to produce good results in terms of restoration of normal menstruation.[3,4]

The result of treatment, from this study in terms of restoration of normal menses is similar to those reported by other workers.[2,9,21] The pregnancy rate of 29.0% recorded however, is lower than that obtained from other series where hysteroscopy division of adhesions was employed.[2,25] Division of the uterine adhesion using the Nd-YAG laser has been reported to be associated with early return of menstruation.[24] The overall prognosis is however dependent on the degree and severity of the adhesions prior to treatment[1,12], the modality of treatment employed, presence of other causes of secondary amenorrhoea[19,20], as well as presence of other underlying causes of infertility.[10]

CONCLUSION AND RECOMMENDATION

Intrauterine adhesion remains an important cause of menstrual abnormalities and infertility in our environment. It's contribution to infertility is somewhat overshadowed by the high incidence of tubal disease as a cause of infertility in our environment.[10,11] The main

aetiological factor in intrauterine adhesion remains traumatic uterine curettage and infections. Blind adhesiolysis followed by insertion of intra-uterine device and hormone therapy remain the preferred treatment modality at our centre. Prognosis following treatment was good in terms of restoration of normal menses in 48.4% of cases, but lower in terms of achieving pregnancy in 29.0% of cases probably due to other underlying causes of infertility and unavailability of current and modern treatment equipments.

Avoidance of all forms of trauma to the pregnant or recently pregnant uterus, use of manual vacuum aspiration, misoprostol, early evacuation of products of conception and application of extreme care where curettage must be carried out are good preventive method. Early evacuation after missed abortion or incomplete abortion reduces adhesion formation. Other modes of prevention include provision of contraceptive advice and services to women to prevent unwanted pregnancies and the antibiotics in management of miscarriages. The careful management of third stage of labour to reduce the incidence of retained placenta which may necessitate manual removal and infections. Also, care in performance of caesarean section and myomectomy are measures that would help reduce the incidence of intra-uterine adhesions in our environment.

Conflict of Interests

The authors declare that there was no conflict of interests regarding the publication of this paper.

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