

INCIDENCE OF UTERINE PERFORATION DURING HYSTEROSCOPY IN A TEACHING HOSPITAL, IN NORTH WESTERN NIGERIA.

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ABSTRACT

Background: Uterine perforation during diagnostic hysteroscopy is relatively rare event in an experience hand. They however occur more frequently with operative hysteroscopy than with diagnostic hysteroscopy. The exact incidence differ from centre to centre depending on the indication for the procedure and the experience of the surgeon. This centre has a five year experience in diagnostic hysteroscopy, and occasionally therapeutic hysteroscopy in adhesiolysis and retrieval of missing intrauterine contraceptive device.

Objective: To evaluate the rate of uterine perforation during different hysteroscopic procedures, whether it can be predicted by specific patient characteristics or the indication for the hysteroscopic procedure.

Study design, settings and subjects: This is a retrospective analytical study, conducted at Aminu Kano Teaching Hospital, which involved all the patients that had hysteroscopy from 2009 – 2012.

Method: Case files of all patients that had diagnostic hysteroscopy in Aminu Kano Teaching Hospital, Kano, within a three year period (from 5th January, 2009 – 5th of January, 2012), were reviewed.

Results: A total of 36 patients had hysteroscopy for various indications within the 3 yr study period. 4 patients had uterine perforation. All the 4 patients, had hysteroscopy for Asherman's syndrome.

Conclusion: The risk of uterine perforation was higher during hysteroscopy for patients with Asherman's syndrome than during other procedures. Special precaution should therefore be taken in this group of patients during hysteroscopy to avoid uterine perforation.

Keywords: Incidence, uterine perforation, hysteroscopy, Asherman's syndrome.

INTRODUCTION

The development of hysteroscopy has provided a minimally invasive approach to common gynecologic problems, such as abnormal uterine bleeding.¹ Increased clinician training, smaller diameter hysteroscopes, and increased emphasis on office-based procedures have led to a widespread use of this important technology.²

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A hysteroscope is a telescope that is inserted into the uterus via the vagina and cervix to visualize the endometrial cavity, as well as the tubal ostia, endocervical canal, cervix, and vagina. Hysteroscopy can be performed for diagnostic or therapeutic indications.^{2,3,4}

Hysteroscopy is a standard tool in the armamentarium of gynecologists therefore, it is important to know how to deal with a rare, but potentially dangerous complication such as uterine perforation at the time of the procedure.⁴ The overall rate of hysteroscopic complications is low; diagnostic cases have a lower rate than operative cases. Most perforations occur during insertion of the hysteroscope, tend to be located in the fundus and are usually self-limiting and less serious.^{4,5,6}

Certain procedures are inherently riskier (adhesiolysis) than others (polypectomy).^{6,7} In order to prevent hysteroscopic complications one needs to be aware of the risks and precautions. It is also important to know how to manage rare but life threatening complications.

The uterine artery is the main source of blood to the uterus along with anastomosis from the vaginal artery.^{4,6} Severe bleeding from lateral uterine perforations albeit rare can have catastrophic consequences.⁶ They may be managed by laparoscopy, or laparotomy and may require emergent hysterectomy.⁶⁻⁸ The risks are related to the underlying cause of the damage to the uterine wall. If there is any concern for damage to surrounding organs then the threshold for visualizing the pelvis should be low. Lateral wall uterine perforations can lead to the development of a retroperitoneal hematoma, and cervical perforations can result in significant immediate or delayed bleeding.^{6,8} Laparoscopy or laparotomy may be needed to

determine the extent of damage, including the existence of bowel injury or bladder injury.^{7,9} During this time laparoscopic suturing of a perforation, placement of sutures during laparotomy, hysterectomy, or uterine artery embolization may be necessary. Keeping an open line of communication with the anesthesia team is also critical, especially as fluid overload or embolism may accompany the perforation. Any damage to the uterine vasculature may increase the chance of fluid overload as there is now an easier portal of entry for the distention media.⁸⁻¹⁰

While overall a relatively safe procedure one needs to be cognizant of the risks in order not to only limit the chance that they occur, but be ready to act if they do indeed take place.

In my centre where this study was conducted, hysteroscopy started about 5yrs ago. Diagnostic hysteroscopy is the most common procedure compared to operative hysteroscopy. This is mainly because of lack of trained personnel in operative hysteroscopy. The only form of operative hysteroscopy done in this centre is adhesiolysis and retrieval of missing intrauterine contraceptive device (IUCD). With the increasing awareness of hysteroscopic procedures in some of our higher institutions, it is imperative to look at uterine perforation as a complication of hysteroscopy, that could be fatal if not recognized early and managed accordingly. And to take special precaution in procedures like adhesiolysis, endometrial ablation and hysteroscopic septal resection.^{7,11,12}

MATERIALS AND METHODS

Case files of patients who had hysteroscopy from the 5th of January 2009- 5th January, 2012, were traced using the theatre record book.

Patient Case file retrieval rate was 94.4%. Indications for hysteroscopy, complications of the procedure and the management were recorded. Patients demographic characteristics were also recorded. Mean, and standard deviation were calculated from frequency distribution tables, using SPSS Version 16.

RESULTS

A total of 36 patients had hysteroscopy within the 3 year period. 2 of these patients case file could not be retrieved giving a retrieval rate of 94.4%. Out of the remaining 34 patients whose case files were retrieved, 4 had uterine perforation, giving an incidence of uterine perforation in this study to be 11.8%. All the patients that had uterine perforation had Asherman's syndrome requiring hysteroscopic adhesiolysis. All the patients that had uterine perforation during hysteroscopy were also offered laparoscopy to determine the extent of bleeding. They were all managed conservatively with antibiotic and they resolved spontaneously.

Table 1: Age distribution of patients that had hysteroscopy

The mean age is 30.5, $SD \pm 5.6$

Table 2: Shows parity distribution of those that had hysteroscopy.

The mean parity is 1.2, $SD \pm 1.1$

Table 3: Shows the various indications for hysteroscopy

The major indication for hysteroscopy was Asherman's syndrome. While the least indication was for missing IUCD

Table 4: A table showing those that had uterine perforation during hysteroscopy.

All the patients that had uterine perforation, had Asherman's syndrome. The risk of uterine perforation during hysteroscopy for Asherman's syndrome in this study is 28.6%.

DISCUSSION

Hysteroscopy is a valuable tool in the treatment and evaluation of infertility and many gynaecological procedures. Its use has relegated blind procedures for the investigation of endometrial pathologies.^{14,15} It is infrequently associated with rare complication like uterine perforation which occurs commonly during operative procedures like adhesiolysis for uterine synechia, resection of the endometrium and entry related perforations.¹⁶ The incidence of uterine perforation in this study is 11.8%. This is higher than the 1.7% and 1.6% reported by Belloni and Agostini respectively.^{17,18} This is because their study was a wider study involving thousands of patients, and the procedures were done by experts in hysteroscopy, unlike a centre like ours with few patients and only 4 year experience in hysteroscopy.

All the uterine perforation that occurred in this study were in patients that had hysteroscopic adhesiolysis for uterine synechia, this is similar to what was found in other studies.^{7,16}

Generally simple perforation may be made with a cervical dilator or with the hysteroscope. Perforation should be suspected if the dilator passes to a depth greater than the length of the uterine cavity. Perforation with the hysteroscope should be avoided by always introducing the telescope under direct visual control. Simple perforation rarely cause any further damage and may be treated conservatively by observation and appropriate broad spectrum antibiotics. Laparoscopy may be considered to exclude bleeding.^{1,12} In this study all the 4 patients that had uterine perforation, had simple perforation. 3 of them were only recognized in the cause of laparoscopy. They were all managed conservatively on broad spectrum antibiotics..

And they all had laparoscopy to determine extend of injury and to exclude bleeding.

Complex perforation may be made with mechanical, electrical or laser instruments, It is unusual for perforation with scissors to cause injury to other organs although this may occur when dividing adhesions in cases of extensive Asherman's syndrome. Hysteroscopy in these cases should always be accompanied by laparoscopy to recognise impending or occult perforation.¹³

Complex perforation caused by electrosurgical instruments or laser maybe associated with thermal injury to adjacent structures including bowel or large vessels. Laser may produce thermal injury at a distance from the site of the perforation because, once the myometrium has been breached, it will vaporise the next surface in its path.^{1,13} Displacement of bowel from the pelvis does not protect it from laser burns. If perforation is suspected the energy source should be switched off and the hysteroscope left in situ unless laparoscopic monitoring has been in progress in which case the telescope can be withdrawn. If the perforation has been caused by an electrosurgical instrument and concomitant monitoring has been performed, laparoscopic examination to exclude bowel injury may be all that is necessary. However in the majority of cases of electrical injury, and in all cases where laser has been used, laparotomy and detailed examination of the bowel, pelvic blood vessels and aorta is mandatory.^{1,8,12}

Prevention of entry related injury is done by good patient selection, careful dilatation with Hegar's dilator before introduction of the hysteroscope. Some studies have described the use of misoprostol for priming the cervix before hysteroscopy.¹⁹

In conclusion, this study showed that uterine perforation occurs commonly in patients with Asherman's syndrome than other indications for hysteroscopy in this centre. This complication was mostly entry related. Good patient selection and careful instrumentation in the hand of an expert will go a long way in preventing this rare but potentially fatal complication of hysteroscopy.

TABLES

TABLE 1: A table showing age distribution patients that had hysteroscopy

AGE	FREQUENCY	PERCENTAGE
20-24	2	5.9
25-29	12	35.3
30-34	8	23.5
35-39	7	20.6
40-44	3	8.8
= 45	2	5.9
Total	34	100

Mean age = 30.5 SD ± 5.6

TABLE 2: A Table showing parity distribution of the patients that had hysteroscopy

PARITY	FREQUENCY	PERCENTAGE
0-1	22	64.7
2-3	11	32.4
= 4	1	2.9
Total	34	100

Mean parity 1.2 SD ± 1.1

TABLE 3: A Table Showing Distribution Of The Indication Of Hysteroscopy

INDICATIONS	FREQUENCY	PERCENTAGE
Asherman's syndrome	14	41.2
Missing IUCD	3	8.8
2 ^o Amenorrhoea	4	11.8
1 ^o Infertility	4	11.7
Dysfunctional uterine bleeding	5	14.7
Endometrial polyp	4	11.8
	34	100

TABLE 4: A table that show uterine perforation during hysteroscopy

	WITH UTERINE PERFORATION (%)	WITHOUT UTERINE PERFORATION (%)	TOTAL
ASHERMAN'S SYNDROME	4 (28.6)	10 (71.4)	14
OTHERS	(0)	20 (100)	20
Total	4 (11.8)	30 (88.2)	34

Overall incidence of uterine perforation during hysteroscopy in this study is 11.8%

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