

Intramural Tubal Polyps – A Villain in the Shadows?

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ABSTRACT

Background: Intramural tubal polyps are commonly described in association with subfertility. However, there is unfamiliarity among clinicians about the investigations available for making a diagnosis of this condition. The objective of this paper was to highlight the suitable investigations for diagnosis and thus increase awareness of this condition and its relationship with subfertility.

Method: A retrospective review of 14 patients with intramural tubal polyps was done for the period from January to December 1996. An attempt was made to correlate the radiographic findings on hysterosalpingography with transvaginal ultrasound examinations and hydrochromotubation performed under laparoscopic observation. The fertility history of these patients was also examined.

Results: The review demonstrated a prevalence of 3.8% of intramural tubal polyps in a selected population of predominantly subfertile women. Only hysterosalpingography was useful in making the diagnosis in-vivo. Fifty percent of the patients did not have any other obvious pathology to explain their subfertility.

Conclusion: We conclude that meticulous hysterosalpingography is useful as a diagnostic investigation and that consistent reporting is needed for good follow-up.

Keywords: ultrasound, hydrochromotubation, hysterosalpingography, subfertility, fallopian tube, polyps

INTRODUCTION

Intramural tubal polyps were first discovered in 1939 by Phillip & Huber⁽¹⁾. Unfortunately, since then not much more has been discussed about them^(2,3). The reasons for this include unfamiliarity with the condition, difficulty in making a diagnosis and the uncertain clinical implications of the condition. These polyps are usually diagnosed in-vivo by hysterosalpingography. Although this allows excellent delineation of tubal pathology^(4,5), correlation of positive findings of intramural tubal polyps on hysterosalpingography with clinical results has been sketchy.

We undertook this review to show what the most useful investigations for making a diagnosis are, in the hope that this would increase awareness

and interest in this condition. With the possibilities for atraumatic intervention in the fallopian tube⁽⁶⁾, it is time for the intramural tubal polyp to “step out of the shadows”.

MATERIAL AND METHODS

Kandang Kerbau Women's and Children's Hospital is a tertiary referral centre for obstetrics and gynaecology in Singapore. It has a well-established programme for assisted reproduction. From January 1996 to December 1996, 370 hysterosalpingograms were performed at this hospital with the overwhelming majority of the indications being evaluation of the fallopian tubes for subfertility. The investigations were usually carried out by the radiologist alone. Cannulation of the cervix was performed with an 8 French Foley catheter, Leech-Wilkinson cannula or a ZinnantiTM uterine injector. Ionic water-soluble contrast was used for all patients except for those who were known to have previous allergic reactions or asthma. Non-ionic contrast was used for this group. Representative radiographs were taken to demonstrate the endometrium, fallopian tubes, tubal patency and the endocervix.

These films were reviewed in 1997 and those radiographs with features suggestive of a tubal polyp⁽⁷⁾ (Table I) were selected for further examination. After excluding those patients with uncertain findings and other differential diagnoses⁽⁸⁾, there were a total of

Table I – Hysterosalpingographic features consistent with an intramural tubal polyp

Persistent oval or linear filling defect (seen on at least 2 views)
Within the cornual sphincter
Usually less than 1 cm in size
Located within 1 - 2 cm of the utero-cornual junction

14 patients who satisfied the diagnostic criteria for intramural tubal polyps. All of these patients were referred for hysterosalpingography because of subfertility except for one patient who required evaluation of a suspected bicornuate uterus. One patient had a repeat hysterosalpingogram performed within the same year for evaluation of the uterine cavity 5 months after resection of uterine endometrial polyps. This showed persistence of the intramural tubal polyps but was considered as a single case.

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An attempt was made to correlate the positive findings on hysterosalpingography with transvaginal ultrasound examinations and hydrochromotubation under laparoscopic observation. Six of the patients had a transvaginal ultrasound of the uterus and ovaries. Nine of the patients had a hydrochromotubation performed under laparoscopic observation. The clinical records were also examined with special attention to the fertility history and all factors, including male factors, that could possibly be responsible for subfertility. Sperm analysis was available for 7 of the husbands of the women.

RESULTS

The distribution of the intramural tubal polyps and patency of the tubes are shown in Table II. Out of 16 fallopian tubes with intramural tubal polyps, only 1 fallopian tube was non-patent (6.25%). The

Table II – Findings of intramural tubal polyps on hysterosalpingography

Distribution	Number
Bilateral	2
Unilateral	12
	Right tube : 5
	Left tube : 7
Patency	Number
Bilateral	11
Unilateral	3
	Right tube : 2
	Left tube : 1

polyps were sometimes subtle and could only be clearly seen at certain angles (Fig 1). They were often small (< 5 mm) and linear in shape (Fig 2). Coexisting uterine abnormalities demonstrated on hysterosalpingography included submucosal fibroids (1), endometrial polyps (1), bicornuate uterus (1) and uterus bicornis bicollis (1) (Fig 3). Transvaginal ultrasound of the uterus and ovaries and hydrochromotubation performed under laparoscopic observation could not show the tubal polyps in these patients.

Endometriosis was diagnosed in 4 patients (28%) and multiple adhesions in 1 patient, on laparoscopy. There were 4 patients shown to have no evidence of endometriosis on laparoscopy while 5 patients did not have any supporting evidence of endometriosis. The ratio of patients with unilateral to bilateral polyps was the same for patients with and without endometriosis (1:3).

The indications for the hysterosalpingography are shown in Table III. The patient who required evaluation of a bicornuate uterus had no difficulty in conception. There is a similar distribution of primary to secondary subfertility in patients with unilateral (6:5) and bilateral (1:1) polyps. Of the 7

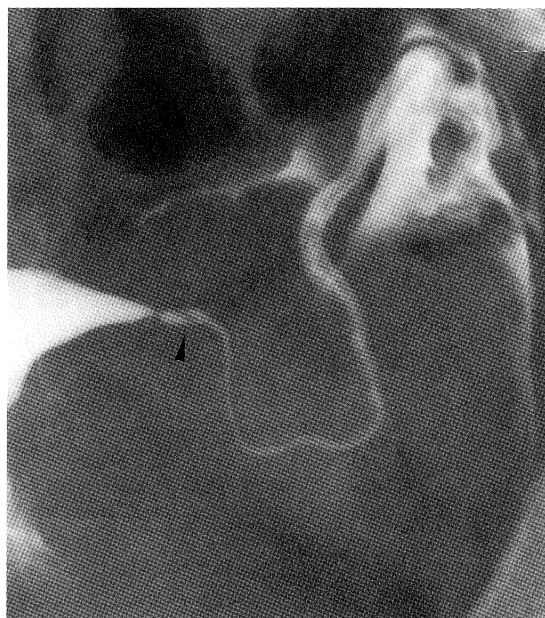


Fig 1 – Hysterosalpingogram. The intramural tubal polyp (arrowhead) is represented by a linear defect in contrast filling within the cornual sphincter. There is free spillage of contrast from the infundibulum of the fallopian tube along peritoneal folds.



Fig 2 – Hysterosalpingogram. The intramural tubal polyp (arrowheads) creates a linear defect that appears to narrow the fallopian tube. Note the free spillage of contrast indicating patency of the fallopian tube.

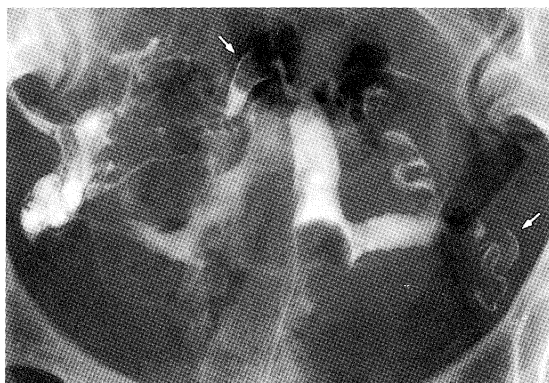


Fig 3 – Hysterosalpingogram. There is a bicornuate uterus present with large, bilateral tubal polyps (white arrows).

Table III – Indications for hysterosalpingography

Indication	Number of patients
Primary subfertility	7
Secondary subfertility	6*
Evaluation of bicornuate uterus	1

* Of this group, 2 patients have children while the rest had miscarriages or previous abortions

Table IV – Pitfalls in diagnosis of intramural tubal polyps on hysterosalpingography

Air bubbles in the fallopian tube
Non-opacification of the proximal fallopian tube
Superimposed uterus and fallopian tube
Confusion with the cornual sphincter or utero-cornual junction

men with sperm analysis, 4 had severe teratozoospermia while the rest were normal. Three of the 4 couples with positive male factors had primary subfertility. The fourth couple had secondary subfertility. Despite factors such as severe teratozoospermia and endometriosis in this couple, the wife had conceived three times before entering the assisted reproduction programme, but unfortunately, had subsequently lost the pregnancies.

DISCUSSION

The fallopian tube may be divided into the intramural part within the uterine wall, the isthmus leading out from the uterus and the ampulla which widens out to the infundibulum⁽⁹⁾. Intramural tubal polyps lie within the first part and are believed to be benign proliferations of endometrial tissue which are sessile and rarely have a stalk⁽¹⁰⁻¹²⁾.

The main way in which intramural tubal polyps are diagnosed in-vivo is by hysterosalpingography. Mistakes in diagnosis may result from technical pitfalls or unfamiliarity with the differential diagnoses such as neoplasms, silicone implants and tubal pregnancy. Common errors are shown in Table IV. Injection of air bubbles may be prevented by assembling and filling the equipment with contrast before insertion. When present, bubbles are round and only transiently seen. Radio-opaque contrast of sufficient density should be used to opacify the fallopian tube. There is a limit to increasing the radio-opacity as it may obscure endometrial lesions⁽⁴⁾ and increase patient discomfort. An initial film when the uterus is underfilled and the proximal fallopian tube have just begun to opacify, is very helpful. Tilting the patient for oblique views is needed sometimes to show the utero-cornual junction which is transversely oriented to the long axis of the fallopian tube. The cornual sphincter which appears as an olive-shaped localised dilatation of the tube, should not contain any filling defects in a normal fallopian tube (Fig 4).

In this review, intramural tubal polyps could be demonstrated regardless of whether a Foley catheter, Leech-Wilkinson cannula or a ZinnantiTM uterine injector was used in cannulation of the cervix. There was no benefit in "straightening" the uterus⁽³⁾ in demonstrating the intramural tubal polyp, although this was needed to show the uterine endometrium clearly.

There is little published data on the correlation between hysterosalpingography and transvaginal ultrasound examinations and hydrochromotubation under laparoscopic observation in the diagnosis of intramural tubal polyps. Although limited in number, this review did not find that the latter two investigations were useful in diagnosis. Transvaginal ultrasound examination is a sensitive investigation for demonstrating uterine and ovarian pathology but is poor in visualising the fallopian tube unless it is thickened or dilated eg. in a case of hydrosalpinx. It should be appreciated that intramural tubal polyps often measure less than 5 mm in size and lie within the collapsed mucosal folds of the fallopian tube. Even a determined and extended transvaginal ultrasound examination of the cornual region did not reveal any abnormal findings in a patient with intramural tubal polyps (Fig 5). Hydrochromotubation under laparoscopic observation cannot visualise the intramural part of the fallopian tube and is a "non-touch" investigation which precludes the use of the more sensitive human fingers.

The prevalence of intramural tubal polyps in this review is 3.8%. While this is based on a group of predominantly subfertile women, it is in keeping with other publications that report a prevalence between 1.2% and 11%^(2,3,10,11,13). Tubal dysfunction is a well-recognised cause of subfertility and has been reported to be a causative factor in 30% - 40% of women⁽¹⁴⁾. It is still not well established if tubal intramural polyps cause subfertility^(2,15).

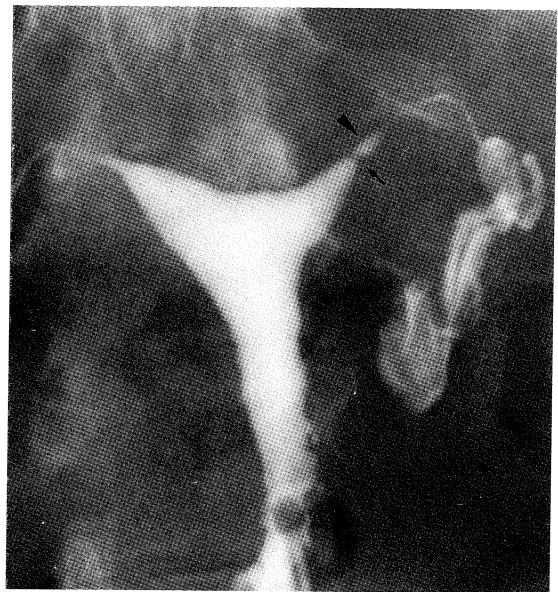


Fig 4 – Hysterosalpingogram. The normal cornual sphincter is shown (arrowhead) and does not contain any defect in contrast filling. The utero-cornual junction is the transverse defect in contrast filling (arrow).

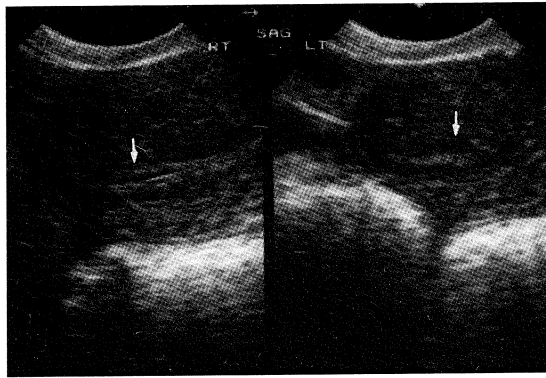


Fig 5 – Transvaginal ultrasound. The endometrium can be traced from the uterine cavity to the most distal portion on both sides (white arrows). No lesion could be detected.

Factors that argue against the role of intramural tubal polyps in subfertility include the patency of fallopian tubes with intramural tubal polyps, lack of success after treatment⁽¹⁵⁾ and the ability to conceive even with this condition. In addition, if intramural tubal polyps cause dysfunction by relative obstruction, patients with bilateral disease should be doubly affected i.e. be more likely to have primary subfertility. This was not borne out in this review. It should be noted that endometriosis is often reported in association with tubal polyps^(11,16). This acts as a confounding factor in statistical analysis as treatment of tubal polyps may unintentionally improve the endometriosis and hence, fertility^(15,18). This would mean that intramural tubal polyps are merely innocent bystanders. The prevalence of endometriosis in this group is within an expected population range (28%). The period of follow-up is too short to comment on the effect of any treatment of endometriosis.

From this review, it was found that some hysterosalpingograms were not initially reported as showing positive findings. This reflects the same hesitation documented by other authors⁽¹¹⁾ in labelling smaller polyps as pathological due to the reasons listed above. While there have been various attempts made to treat tubal polyps with either surgical intervention^(11,17) or hormonal manipulation⁽¹⁸⁾, the majority of patients with these findings are subfertile; and there is no wish to initiate an interventional process, which could potentially damage the proximal fallopian tube⁽¹⁹⁾. On the other hand, after excluding all other causes, 50% of the couples in this review had otherwise unexplained subfertility. Some studies have shown that pregnancy rates increase after treatment of intramural tubal polyps⁽¹⁷⁾. It is possible that such treatment will benefit affected couples. However, unless there are consistent reports on this condition, there will be no impetus to follow-up these patients and exclude the intramural tubal polyp as a cause of subfertility. It is hoped that increased interest will prompt studies into the natural history of this condition and its clinical implications.

CONCLUSION

Currently, more attention is being paid to the proximal fallopian tube in the investigation of subfertility. The connection between intramural tubal polyps and subfertility is still a mystery. This review shows that meticulous hysterosalpingography, when technical pitfalls are avoided, allows easy identification of this condition. This investigation is not readily replaced by other choices such as transvaginal ultrasound examination and hydrochromotubation under laparoscopic observation. Optimal application of technique, consistent reporting of polyps and clinical correlation will show if the intramural tubal polyp is merely an innocent bystander or a villain lurking in the shadows.

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