

Myometrial Biopsy in the Diagnosis of Adenomyosis Uteri

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Summary: Role of myometrial biopsy and FNAC in preoperative diagnosis of adenomyosis uteri was evaluated in 40 women with clinical or sonographic suspicion of adenomyosis undergoing hysterectomy. Histopathology of hysterectomy specimen was compared with results of biopsy and FNAC. Myometrial biopsy was found to be safe and provided adequate sample but could not diagnose any of the 9 histopathologically proven cases. FNAC could obtain tissue in 12 cases; out of which, 2 cases were positive and 4 cases were false positive. No valid conclusion could be drawn. Further studies of myometrial biopsy and aspiration with better suction devices, under sonographic guidance with better delineation and inclusion of endomyometrial junction are suggested.

Introduction

Adenomyosis uteri, not an infrequently diagnosed benign gynaecological condition was first described by Rokitansky in 1860. Incidence reported has been 5% to 70% in unselected hysterectomy specimens. Until now, the diagnosis has been made by histopathological examination of a hysterectomy specimen. With the advent of newer approaches to therapy like conservative surgery or gonadotrophin therapy, a preoperative diagnosis is essential. Conservative surgical procedures like endometrial resection and myometrial reduction or excision, were found to be palliative in 71% of cases (Popp LN et al, 1993). Two reported cases of adenomyosis in the literature (Jeffrey R.N. and Stephen L.C. 1993; Hirata JD et al 1993) with tissue diagnosis at laparoscopy/laparotomy responding to gonadotrophin therapy resulting in conception; strongly favour the usefulness of preoperative diagnosis.

Menorrhagia, dysmenorrhoea, uterine enlargement though regarded as cardinal clinical symptoms; none is specific as reported by Pentti Kilkku et al, (1984). Hysterosalpingographic findings described as short spicules ending in small sacs extending from border of uterine cavity varying 1-4 mm in length (Goldberger et al, 1949) are non-specific too. Hysteroscopically, only a few cases of severe adenomyosis may have typical appearance of cavities and trabeculations but milder foci cannot be diagnosed visually. With transvaginal sonography (TVS) Dodson 1991 gave the following findings suggestive of adenomyosis: diffuse uterine enlargement, thick-

ened posterior wall, eccentric endometrial cavity, hyperechoic density with acoustic shadow, irregular cystic spaces of 5 to 7 mm and disruption of homogenous echogenic pattern. Since then various workers (Lori 1994, Wood et al 1993, Fedele et al 1992) have reported a diagnostic accuracy varying from 48% to 74%. With MRI, though the accuracy reported is 88%-100% (Mark et al 1987; Togashi et al 1989; Togashi et al 1988) but the cost is the limiting factor. Hence, there is a need for tissue diagnosis. There are few studies on tissue diagnosis by various routes. The diagnostic accuracy of myometrial biopsy varies from as high as 66% (Mc Causland, 1992) to as low as 8% (Popp et al, 1993) by single biopsy. This prompted us to further explore the role of myometrial biopsy. In addition, walking on the untrodden path, fine needle aspiration cytology was also evaluated because the basic concept is to have tissue for histological diagnosis.

Materials and Methods

The study was conducted during the period April 1996 to March 1997 on 40 women posted for hysterectomy with clinical diagnosis of adenomyosis as suspected by symptoms of menorrhagia, dysmenorrhoea, dyspareunia, enlarged uterus. Out of these, 11 patients were non-responders to medical treatment and in 10 cases there was sonographic suspicion. Benign and malignant uterine neoplasms were excluded. Informed, written consent was taken.

On the day of surgery, prior to laparotomy, laparoscopy

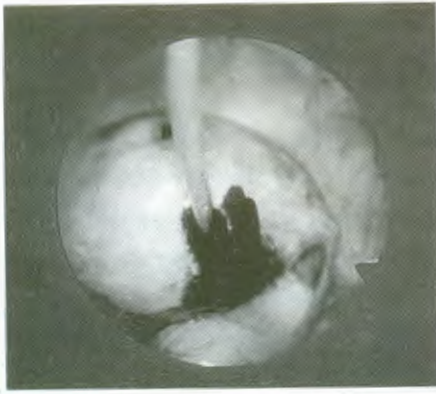


Fig. I: Laparoscopic guided myometrial biopsy with trucut needle.

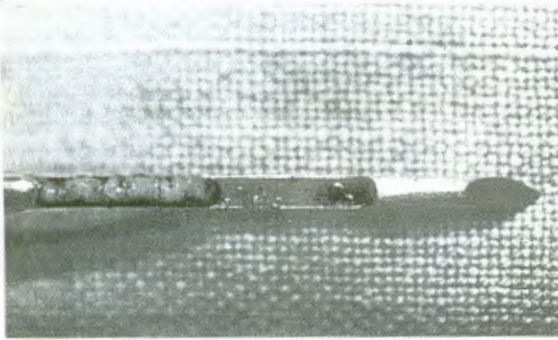


Fig. II: Trucut needle showing myometrial biopsy tissue.

was performed under GA. FNAC was taken with a 23G, 8 inches long needle through a suprapubic puncture under laparoscopic vision. Two aspirates were taken, one from anterior wall in each case and another from either anterior wall or suspicious area. The smears were immediately made and taken to the laboratory for further evaluation. Following FNAC, trucut myometrial biopsy was performed with a 18G (outer diameter – 2mm) trucut needle 8" long; having a sampling notch of 17mm through the same puncture site after making a small nick in the skin. (fig.I). Two myometrial biopsies were performed (fig.II), one from posterior wall in each case and another from either anterior wall or suspicious area. The biopsies were preserved in 10% formalin and taken to the laboratory for further evaluation. Puncture sites were observed for bleeding. Following biopsy, hysterectomy was undertaken and the specimen sent for histopathological examination.

In the laboratory, air dried FNAC smears were fixed in methanol for 5-10 minutes followed by May-Grunwald's Giemsa (MGG) staining. Biopsy material was routinely

processed in 5m thick paraffin embedded section followed by haematoxylin and eosin staining. From the hysterectomy specimen, multiple sections of each uterus were examined.

Observations and Results

FNAC: Bleeding did not occur in any case except slight ooze at puncture site. Endometrial and myometrial fragments were obtained in 12 cases (30%) whereas only blood or intercellular fluid in 28 (70%). Out of the 12 cases with adequate tissue; 6 cases had myometrial fragments with few endometrial glands while 6 cases had myometrial fragments only.

Myometrial biopsy: Bleeding lasted for less than 30 seconds in 35 cases while in 5 cases bleeding lasted 1-2 minutes. This stopped spontaneously. Adequate tissue, that is, strip of tissue containing myometrium with surface endometrium was seen in 2 cases. In rest of the cases, myometrium was obtained. Histopathologically, no evidence of adenomyosis was seen in any of the biopsy materials.

Hysterectomy specimen: 9 cases out of 40 (22%) were diagnosed to be adenomyosis on histopathological examination. Endometrial penetration > 2mm from

Table I:
FNAC Vs Hysterectomy specimen

FNAC	Hysterectomy specimen			Total
	+	-		
+	2	4		6
-	4	2		6
Total	6	6		12

Table II:
Myometrial biopsy Vs Hysterectomy specimen

Myometrial Biopsy	Hysterectomy specimen			Total
	+	-		
+	0	0		0
-	9	31		40
Total	9	31		40

endomyometrial junction was taken as adenomyosis.

FNAC Vs Hysterectomy specimen: FNAC and histopathological correlation was done in 12 cases where

adequate tissue on fine needle aspiration was obtained. (Table I). Adequate tissue was obtained by fine needle aspiration in 6 cases out of 9 histopathologically proven adenomyosis. FNAC showed endometrial and myometrial fragments in 4. Out of 31 cases of histologically diagnosed non-adenomyosis, tissue was obtained in 6 on fine needle aspiration. Out of these 6 cases, endometrial and myometrial fragments were seen in 4 and only myometrium in 2.

Myometrial biopsy Vs Hysterectomy specimen

None of the cases of adenomyosis could be diagnosed by myometrial biopsy. (Table II). In addition, there were no false positive results.

Discussion

Ever since Pasquincucci et al, 1991 proposed needle biopsy, very few studies, have appeared in the literature on myometrial biopsy, taken by various routes; Pasquinucci et al, 1991 through laparoscope; McCausland, 1992 through hysteroscope; Popp et al, 1993 through various approaches: ultrasound guided, laparoscopic or percutaneous and/or hysterectomy specimen.

In the present study, good strips of myometrium (two per case) were obtained in all the cases with 18 G needle. This is in consensus with Popp et al, 1993 who took biopsies in 45 cases through laparoscope.

In the present study, there was no significant bleeding following myometrial biopsy in any of the cases, requiring adrenaline. This is in consensus with Pasquinucci et al, 1991 who did not observe significant bleeding, while, Popp, et al, 1993, reported bleeding after removal of puncturing needle in almost every case for more than 10 minutes but reported use of ornipressin in only 6 out of 34 cases.

Popp et al, 1993, have reported sensitivity of myometrial biopsy in picking up different grades of adenomyosis as 40% to 70% with 10 biopsies per case in vitro (hysterectomy specimen). This reduced to only 81.8% with single biopsy. In the present study, however, no case was diagnosed by biopsy (9 histopathologically proven). Since endomyometrial junction was seen in biopsies of only 2

cases out of 40, non inclusion of endomyometrial junction may be responsible for the low pick up rate in our study.

Fine needle aspiration for diagnosis of adenomyosis has been performed for the first time in the present study. Bleeding did not occur from puncture site in any case. Endometrial and myometrial fragments were obtained in 12 out of 40 cases inspite of two aspirates per case. This is in contrast to other body tissues where yield is very high. Epithelial tissue or lymphoid tissue lends itself well to fine needle aspiration and large fragments of epithelial tissue are easily dislodged by the aspirating needle. On the contrary, mesenchymal tissue is much more cohesive, does not commonly yield tissue fragments which can be interpreted in cytologic smears and even if mesenchymal tissue fragments are obtained, they do not spread satisfactorily on slides. Hence, it is not surprising that uterine wall fragments did not commonly show myometrial fragments. Another reason may be difficulty in manoeuvring of the long and fine needle into the rather tough uterine musculature, thus getting kinked and hence losing the suction property. No valid conclusion can be drawn from the observation of endometrial fragments in two true positive cases; and 4 false positive cases, in the present study. It is quite possible, that the needle entered endometrial surface in the four false positive cases and there is no way to prove or disprove that the needle did not enter surface endometrium in the two true positive cases; since it was a blind procedure.

To conclude, the technique of myometrial biopsy is safe and provides sufficient tissue sample. However, it did not prove to be useful in diagnosing adenomyosis in our study. With studies available now, based on cytological and chemical changes in the peritoneal fluid for diagnosing endometriosis externa, though it seems farsighted at present; diagnosis based on certain immuno-histochemical changes in the myometrium may come true in future. The same has been opined by Popp et al, 1993.

Further studies of myometrial biopsy and aspiration with better suction devices, under sonographic guidance with better delineation and inclusion of

endomyometrial junction are suggested.

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