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RESEARCH ARTICLE

CYTOLOGICAL STUDY OF SCAR ENDOMETRIOSIS - A CLINICOPATHOLOGICAL STUDY OF 5 CASES WITH PRIMARY DIAGNOSIS BY FINE NEEDLE ASPIRATION CYTOLOGY WITH REVIEW OF LITERATURE

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Abstract

Endometriosis is defined as presence of functioning endometrial glands and stroma outside the uterine endometrial cavity [1-4]. Endometrial tissue has been identified in numerous surgical scars including caesarian and laparoscopic scar [2-5,7.]

Objective: 1) To evaluate the cytomorphological features of scar endometriosis

2) To assess the feasibility of FNAC as a diagnostic tool

Methods : We present the cytological features of abdominal wall endometriosis diagnosed by FNAC over a 5 year period (Jan 2009-Dec 2013) in department of pathology at Melmaruvathur Adhiparasakthi Medical college & research Institute ,Melmaruvathur. The patients age ranged from 23-35 yrs . 2 out of 5 had Lower segment Caesarian Section, 2 out of 5 had hysterectomy and 1 patient had laporoscopic appendicectomy. The mode of presentation was painful nodular swelling after a period of 2-5 Yrs.

Results : Cytological findings comprised of epithelial clusters and spindle shaped stromal cells with numerous haemosiderin laden cyst macrophages . A diagnosis of endometriosis was made in all 5 cases and was confirmed by histopathology

Conclusion : Scar endometriosis is extremely rare and has to be differentiated from a variety of benign and malignant disorders .FNAC is a simple and cost effective tool which provides rapid diagnosis thereby avoiding the need for other procedures.

Introduction

Endometriosis is defined as the presence of functioning endometrial glands and stroma outside the endometrial cavity [1-4] .It primarily affects women of reproductive age group and occurs in 8-15% of women [5-8]. Endometriosis remains a diagnostic enigma because of its variable clinical presentation [5-7]. Pelvis is the most common site [4-5].It can also occur in lungs, bowel, and brain[4]. Endometriosis occurring in an operative scar is very rare and is clinically confused with abscess, suture granuloma, haematoma, desmoid tumour and metastatic malignancy [4-9].

Materials and Methods

We studied 5 cases of endometriosis that was diagnosed primarily by FNAC and confirmed histologically in Department of pathology , Melmaruvathur Adhiparasakthi Medical college & research Institute ,Melmaruvathur from Jan 2009-Dec2013. Clinical details are given in table 1.FNAC was performed by a cytopathologist using a 24 G needle ,Smears were processed and stained with Haematoxylin & Eosin and Papanicolou stain after wet fixation in 95% isopropyl alcohol. Biopsy specimens were routinely processed after fixation in 10% formalin and stained with Haematoxylin & eosin

Results

FNAC samples were cellular in 3 cases and showed 2 distinct cellular pattern composed of sheets and clusters of polygonal cells having scanty cytoplasm with round to oval nuclei with inconspicuous nucleoli. Background showed presence of spindle shaped cells with elongated nuclei and scanty cytoplasm, haemosiderin laden cyst macrophages and haemorrhage. In 2 cases smears were scantily cellular and consisted mainly of spindle shaped stromal cells and occasional macrophages.

Histopathology was confirmatory in all 5 cases and showed endometrial glands surrounded by spindle cell stroma, lympho-plasmacytic infiltrate and haemosiderin laden cyst macrophages within a dense fibrocollagenous stroma confirming the cytologic diagnosis.

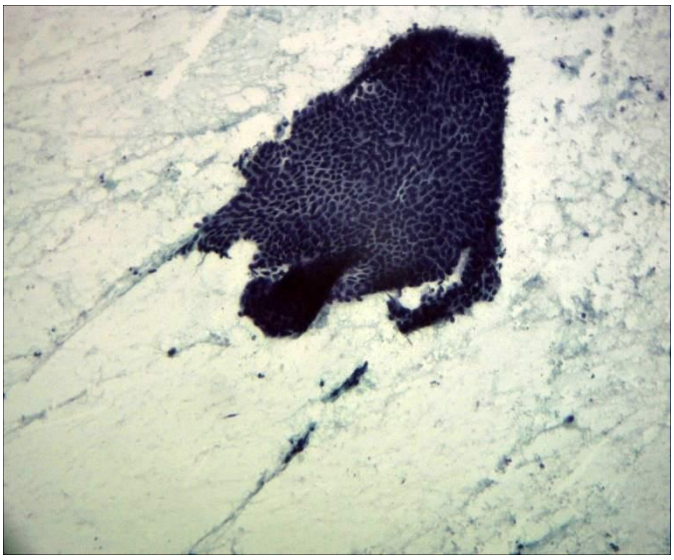

Fig 1 10x papanicolou stained smear showing sheets of cohesive epithelial cells with round nucleus and scanty cytoplasm

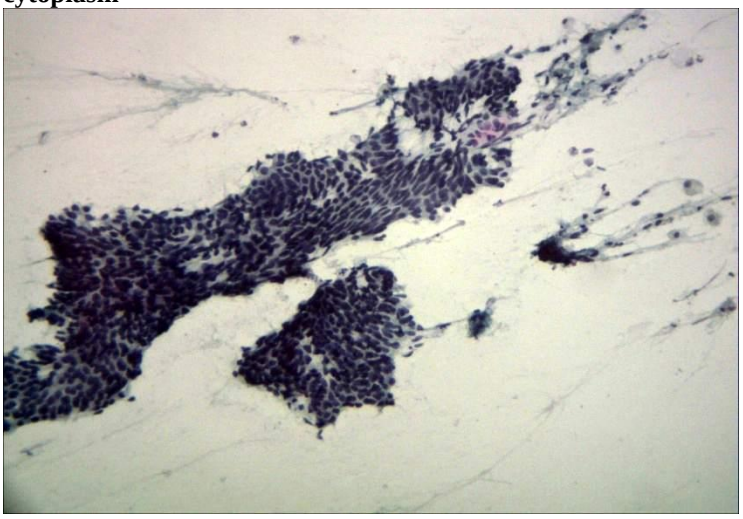

Fig 2 10x papanicolou stained smear showing sheets of epithelial cells ,spindle shaped stromal cells and cyst macrophages

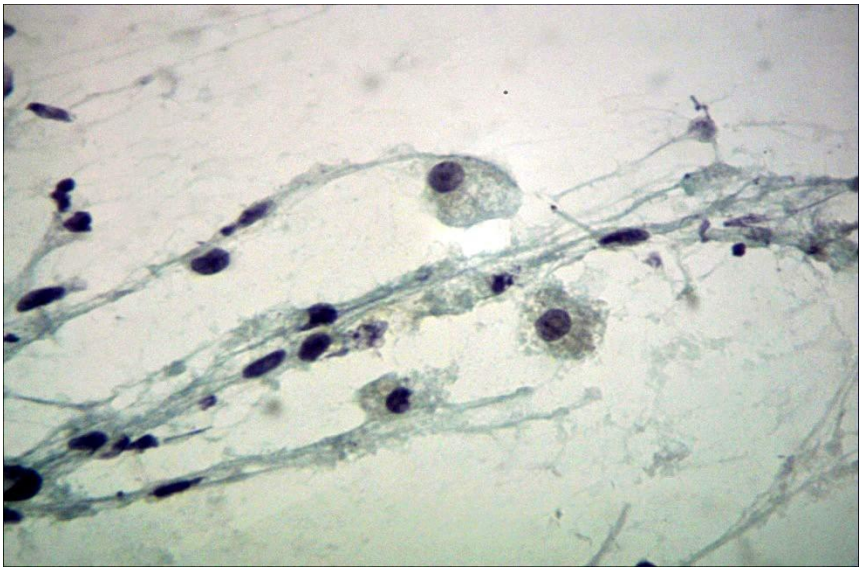

Fig 3 40x papanicolou stained smear showing spindle shaped stromal cells and cyst macrophages

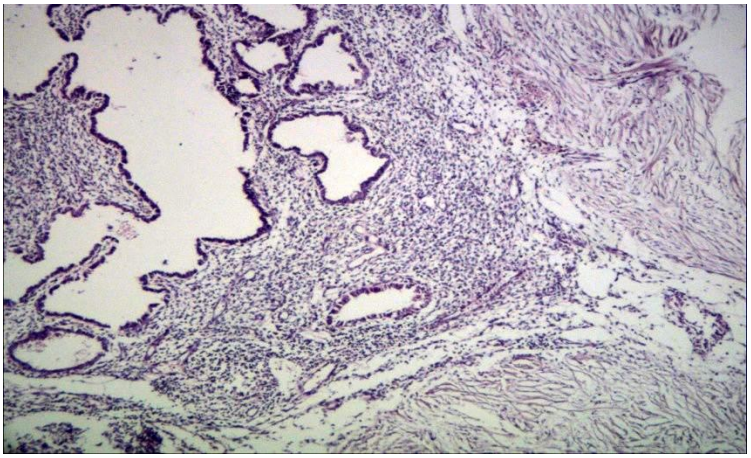

Fig 4 10x H & E stained section showing endometrial glands surrounded by desmoplastic stroma

Age	Surgery	Size of lesion	Appearance of symptoms
37	Hysterectomy	Nodular lesion measuring 3x2 cm	3yrs after surgery
23	Appendicectomy	Nodule measuring 1.5x 1.25cm	2.5 yrs after surgery
31	LSCS	Nodule measuring 1x1 cm	3 yrs after surgery
28	LSCS	Nodule measuring 2x1.5 cm	2yrs after surgery
34	Hysterectomy	Nodule measuring 2.5 x 1.5 cm	1.5 yrs after surgery

Table 1 showing clinical correlation between time of surgery and appearance of lesion

Discussion

Endometriosis is defined as presence of endometrial glands and stroma outside the endometrial cavity [1-4]. It has been identified in numerous sites, Pelvis being the most common region [4-5]. Extrapelvic endometriosis is uncommon with a prevalence of 8.9-15%, occurring in sites like bladder ,kidney, bowel, lymph node [4-8]. Endometriosis occurring in a postoperative scar is very rare [4-7]. Majority of the cases have been observed to occur around the site of surgical scar [10]. The incidence of endometriosis developing in the scar depends on the indication for the original surgery, accounting for 1.08% in mid-trimester abortion and 0.03–0.4% following caesarean sections [9,10]. The higher incidence in mid-trimester abortions may be due to pluripotential capability of early deciduas, resulting in cellular replication producing endometriomas [9].The first case of scar endometriosis was reported by Meyer in 1903 [11]. Blanco et al.[9] reported 10 cases of scar endometriosis , of which 9 cases followed caesarean section and one occurred in laparotomy for ectopic pregnancy. In a study by Pathan et al.[6] seven cases occurred in caesarean and one occurred in a hysterectomy scar. Horton et al.[4] reviewed 445 cases of abdominal wall endometriosis among which 57, 11 and 12 % cases occurred in scars of caesarean section, hysterectomy and other surgical procedures, respectively. 20% of cases did not occur in the scar but elsewhere such as groin [12] and the umbilicus[13]. In the present study 2 cases of endometriosis were seen following caesarean section around the site of incision, 2 following hysterectomy and 1 following appendicectomy

Features of scar endometriosis are usually lump in the scar , pain, increasing size of lump, bleeding and skin discolouration [14] . Cyclicity of symptoms during menstruation if present is pathognomic of scar endometriosis but is not present in all the cases [2]. The interval between onset of symptoms and primary surgery varies from 3 months to 10 yrs [10].

In the present study all the patients presented with nodular swelling adjacent to the scar tissue. The average size ranged from 1.5-3 cm. All these cases were clinically suspected for other conditions like desmoid tumour, nodular and proliferative fascitis, fat necrosis, lipoma, suture granuloma, abscess and Metastatic Malignancy [6-8.]

FNAC provides a simple and rapid diagnostic tool avoiding the need for invasive diagnostic procedures to resolve the differential diagnosis of palpable lump in abdominal wall. Smears from the endometriotic lesions shows varying cellularity comprising of both epithelial and spindle stromal cells, with variable number of hemosiderin laden macrophages and inflammatory cells [6].The presence of any two of the three components (endometrial glands, stromal cells and hemosiderin laden macrophages) has been used for the cytological diagnosis of endometriosis [6].The cytological features of scar endometriosis are usually related to cyclical hormonal changes. In proliferative phase, the epithelial cells form cohesive sheets of uniform small cells with scanty cytoplasm, and round to ovoid nuclei with bland chromatin [7,8]. During secretory phase, the cell size gradually increases with cytoplasmic microvacuolations. The stromal cells may show abundant cytoplasm and predecidual change with an epithelioid appearance, causing diagnostic difficulties .The background usually contains inflammatory cells and histiocytes. Occasional cases may show squamous or tubal metaplasia leading to misdiagnosis [6-8].

With optimal FNAC samples the differential diagnosis of endometriosis with other nodular lesions such as desmoid tumour, suture granuloma, necrotic nodules, nodular and proliferative fasciitis is mainly clinical since identification of benign endometrial type glandular tissue usually excludes all the entities mentioned above [1,15].

Desmoid tumor shows less cellularity with benign appearing mesenchymal cells. Suture granuloma shows nonspecific inflammation with or without granulomatous inflammation and foreign material. Fat necrosis shows foamy macrophages, inflammatory and multinucleated giant cells, fragments of adipose tissue and no epithelial cells. Nodular fasciitis shows myxoid background and pleomorphic cells. Smears from primary or metastatic malignancies are hypercellular with frankly neoplastic cells [7,8].

The imaging modalities of endometriosis are non-specific but are useful in determining the extent of the disease and planning of operative resection, especially in recurrent and large lesions [9]. So FNAC provides a simple, reliable and cheap diagnostic tool providing rapid and accurate diagnosis

The treatment of choice of scar endometriosis is wide local excision.

Conclusion

Scar endometriosis is extremely rare and has to be differentiated from a variety of benign and malignant disorders . Patients usually present with a nodular swelling 2–5 years following uterine or fallopian tube surgery, that may become more symptomatic during menstruation. FNAC is a simple and cost effective tool which provides rapid diagnosis thereby obviating the need for other procedures.

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