



## PARIETAL ENDOMETRIOSIS IN ABDOMINAL WALL: REPORT OF EIGHT CASES

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### ABSTRACT

Parietal endometriosis is a rare clinical entity, occurring after gynecological, obstetrical or abdominal surgery. Sometimes it is primitive. The etiopathogeny remains unclear. **Material and method:** We report eight cases of abdominal parietal endometriosis occurring in seven cases on laparotomy scars and in one case in a primitive way. **Discussion and conclusion:** Clinical features include swelling and pain that is rhythmic with the menstrual cycle, but this picture is rarely complete. Medical imaging is of little assistance. Only histological examination of the surgical specimen will confirm the diagnosis. Surgical treatment is based on the complete removal of the lesions must be large enough to avoid any recurrence.

**KEYWORDS:** Parietal endometriosis; Abdominal scars; Diagnosis of endometriosis; Surgery.

### SUMMARY

Parietal endometriosis is a rare clinical entity that occurs after a gynecologic, obstetrical or abdominal surgery. The etiopathogeny remains unclear. We report eight cases of parietal abdominal endometriosis. Clinical features include swelling and periodic pain, but this table is rarely complete. Medical imaging is not contributory. Only the histological examination of the surgical specimen may confirm the diagnosis. Surgical treatment is based on complete excision of lesions that should be broad enough to avoid any recurrence. Keywords: Parietal endometriosis; Abdominal scars; Endometriosis diagnosis; surgery.

### 1. INTRODUCTION

External endometriosis is an ectopic localization of tissues whose morphological and functional characteristics are those of the endometrial mucosa. It is found in 10 to 20% of women in genital activity. It occurs in about 0.1% of scars from gynecological-obstetrical procedures.<sup>[1]</sup> On the other hand, in spontaneous skin localizations, it is 0.5%.<sup>[2]</sup> Diagnosis is relatively easy in women between 20 and 40 years of age with catamenial symptoms.<sup>[2]</sup> Abdominal parietal endometriosis has been described in various locations including the abdominal wall (rectus abdominis) and umbilicus,<sup>[3-4]</sup> caesarean section scars,<sup>[5-6]</sup> skin and adjacent tissue from abdominal or pelvic surgery scars.<sup>[7-9]</sup> at the site of amniocentesis needle passage.<sup>[4]</sup> and at laparoscopic trocar ports.<sup>[10]</sup> Here we report eight cases of parietal endometriosis observed during the last nine

years (between 2001 and 2009) in the Gynecology - Obstetrics Department of the Ibn Rochd Hospital Center in Casablanca. These are young patients (between 34 and 39 years old) with parietal endometriosis on caesarean section scars, apart from one patient who had no previous surgery.

### 2. PATIENTS AND METHODS

During nine years (between 2001 and 2009), we recorded eight cases of endometriosis of the abdominal wall, including seven cases of parietal endometriosis after laparotomy for gynecological or obstetrical pathology and one case of primary endometriosis, in the Gynecology-Obstetrics "C" department of the Ibn Rochd Hospital in Casablanca.

### 3. RESULTS

The average age of the patients was 37 years (34 to 39 years). Seven patients were married and multiparous, four of them had delivered by cesarean section, three patients had delivered vaginally. One patient was single and had never given birth. The surgical history was marked by the presence of scarred uterus by Caesarean section in four patients, with a tricatricial uterus in one patient whose last Caesarean section was performed ten years ago with tubal ligation and a bicatricial uterus in another patient whose last Caesarean section was performed two years ago. In two other patients, the surgical history was marked by a cystectomy for an ovarian cyst of the nature of a seven-centimeter serous cystadenoma in a nulligest patient and by a myomectomy

six years ago in two patients. The reason for consultation was paroxysmal pain with premenstrual recurrence at the scar level, without metrorrhagia, urinary or digestive disorders in seven patients. The evolution was marked by the appearance of a swelling of the laparotomy scar, which was painful, catamenial with a bluish discoloration and gradually increasing in volume in seven patients (fig. 1). These pains appeared on average five years after laparotomy (one to nine years). In the patient with primary umbilical endometriosis, she consulted for painful and itchy umbilical swelling, a symptom that intensified during menstruation. This swelling had been evolving for nine months and was gradually increasing in volume. Clinical examination revealed a nodular mass in the middle of the Caesarean section scar, bluish in appearance and painful on palpation (Fig. 2). The size of the mass varied between 20 and 100 mm, with an average of 40 mm. Clinical examination of the patient with a umbilical endometriosis found a tumour two centimetres in diameter which was located in the center of the umbilicus, mobile with respect to the deep, of firm consistency, slightly sensitive to palpation, without any surrounding skin lesion (Fig. 3). Gynecological examination and pelvic touching are without particularities in all cases. A pelvic and endovaginal ultrasound scan did not reveal images in favour of pelvic endometriotic localizations. On the other hand, at the level of the laparotomy incision, Ultrasonography showed a hypoechoic, heterogeneous, parietal mass with a finely echogenic content averaging 30 mm (Figure 4). The pelvic CT scan was carried out in three patients, and in all cases it showed the presence, opposite the operative scar, at the expense of the skin tissue, of a hypodense formation, rising at the level of its periphery after injection of contrast agent, with discreet infiltration of the periwound fat. The size of the mass on the scanner was 40 mm. In one patient, the pelvic CT scan showed a tissue lesion process, with an anterior and medial parietal site, infiltrating subcutaneous fat and underlying muscle (Figure 5). The surgical procedure consisted of lumpectomy in all cases (Figures 6, 7 and 8). Surgical exploration did not detect any intra-abdominal processes. One patient had received medical treatment with LH-RH analogues for six months, with the aim of reducing the initial nodule size of 100 mm prior to surgery. This treatment resulted in the regression of half of the mass, measuring 50 by 40 mm. In this patient, surgical resection consisted of a subumbilical parietomy with extensive skin sacrifice, anterior fascial sacrifice and muscle sacrifice in the internal third of the rectus abdominis. The repair of the aponeurotic defect, extended over 10/10cm, was performed by sufficient external oblique flaps over 7 cm in the subumbilical area. This repair is reinforced by a plate on the omentum. The skin defect was closed by a T-shaped abdominal plasty, with externalization of the umbilicus. Follow-up at three and six months noted good abdominal tone (Fig. 9). In addition, surgical exploration did not find intra-abdominal processes in seven patients. An open

laparoscopic examination was performed in the patient with umbilical endometriosis after removal of the tumour that had taken over the umbilicus (Fig. 10) through the same umbilical excision port. Exploration of the abdominal pelvic cavity allowed verification of the absence of any primary endometriotic lesion. The surgical procedure ended with suture of the sub umbilical fascia and umbilical plasty with creation of a new umbilicus (Fig. 11). Histological examination of the surgical specimen confirmed the diagnosis of endometriosis in all cases (Fig. 12). Follow-up of our patients showed no recurrence in seven patients. In one case, two local recurrences on the laparotomy scar had occurred two years apart. The last one was two years ago, when the patient was on progestins and had undergone surgical excision. The postoperative follow-up was simple. With a 14-month to 6-year follow-up, no recurrence was observed, apart from the above-mentioned case.

#### 4. DISCUSSION

Endometriosis is the ectopic implantation of endometrial tissue. Endometriosis of the abdominal wall is an uncommon pathology and the initial diagnosis is not always easy.<sup>[1]</sup> It is estimated to account for 0.03 to 2% of extra-genital endometriosis. Only 14.3% to 26% of cases are associated with pelvic endometriosis, in contrast to other atypical implantation sites such as the gastrointestinal tract or the urinary tract.<sup>[3]</sup> Abdominal parietal endometriosis has been described in various locations including the rectus abdominis,<sup>[1,11]</sup> the umbilicus,<sup>[12]</sup> scars from cesarean section, hysterectomy,<sup>[3-4]</sup> abdominal-pelvic surgery, amniocentesis needle site, laparoscopic trocar ports.<sup>[4]</sup> Other locations have also been reported, such as the cervix or vulva on episiotomy scars, but never described in the spleen.<sup>[4]</sup> The presence of isolated endometriosis sites in the umbilicus, rich in lymphatic and venous networks, and in the absence of previous surgery can only be explained by the venous or lymphatic metastatic theory.<sup>[1,2]</sup> Indeed, it was demonstrated the potential for remote implantation of endometrial glandular cells found in the blood and the migration of contrast material injected into the pelvic cavity towards the umbilicus via umbilical vestigial ducts. Recent work has shown the presence of endometrial tissue in the periumbilical lymphatic system.<sup>[4]</sup> This entity is rare after menopause. Indeed, at menopause the cytochorionic component regresses but the glandular component may persist. The reactivation of the glandular component under the effect of hormone replacement therapy or in the presence of a secreting adrenal or ovarian tumor (granulosa type) that produces a hyperestrogenic site is known.<sup>[1]</sup> In the multicenter study of the endometriosis study group, endometriosis of the abdominal wall mainly affects women with genital activity between 20 and 40 years of age.<sup>[4]</sup> The age of our patients ranges from 34 to 39 years with an average age of 37 years. Elabsi.<sup>[1]</sup> reports a case of scarring endometriosis in a postmenopausal woman.

### Clinically

The clinical manifestation usually corresponds to a nodular, inflammatory, persistent infiltration of an abdominal scar. This lesion is painful and catamenial.<sup>[4]</sup> This infiltrating, nodular, painful and cyclic nature of the lesion was found in all our patients. Frequently, the inflammatory area is associated with serous or serosanguinous discharge, which is exacerbated at the time of menstruation.<sup>[4,14]</sup> This notion was found in one of our patients. Parietal endometriosis is usually found on Caesarean section scars,<sup>[6]</sup> which is the case in four of our observations, or scars from gynecological surgery (laparoscopy or laparotomy),<sup>[4]</sup> as in two of our series. The frequency of endometriotic skin localizations after Caesarean section varies from 0.03 to 0.4%,<sup>[6]</sup> however, this frequency is much higher than that observed after conventional gynaecological surgery.<sup>[4,6]</sup> It can occur several weeks or years after surgery.<sup>[4]</sup> Koger *et al.*<sup>[17]</sup> report an interval of 1 to 20 years (mean 4.8 years) between surgery and the onset of symptoms. Zhao.<sup>[15]</sup> observed a correlation between the latency period and the age of patients at the onset of symptoms. It should be noted that the delay between the causal intervention and the onset of endometriosis is highly variable.<sup>[4]</sup> It is usually a few months but can sometimes be very delayed, as we observed in one of our observations. In our patients, the delay between the onset of symptoms and the date of obstetric surgery was 5.25 years on average (two to 10 years). The most common modes of disclosure are the discovery of a palpable mass or localized pain in patients with a history of Caesarean section.<sup>[4-6]</sup> Catameniality, i.e. the exacerbation of these non-specific signs during menstruation, is an important part of the diagnosis.<sup>[4]</sup> All of our patients were seen for assessment of a parietal mass. This mass was painful with catamenial exacerbation of the symptomatology in all cases, with pain being less predominant in two cases. It should be noted that signs of intra-abdominal pelvic endometriosis were found in only 26% of cases in the literature.<sup>[4,9]</sup> and none of our patients showed signs of intra-abdominal endometriosis. Thus, the preoperative diagnosis of scarring endometriosis of the abdominal wall can be suspected in the typical form that manifests itself by the presence of a nodule or swelling, purplish blue, painful with brown discharge or hemorrhagic in the period menstrual and catamenial evolution, occurring on a scar most often gynecological. Ultrasonography plays an important role in the diagnostic orientation and preoperative assessment, even if it does not allow any formal diagnosis. It confirms the typically intramuscular parietal origin of the suspected mass on clinical examination. It also specifies the size, contours and relationships with adjacent structures.<sup>[18,21]</sup> The ultrasound aspect of parietal endometriosis is variable. Most often, it is a very limited, hypoechoic, tissue-typical mass. However, the lesion may be cystic, mixed or solid.<sup>[20-21]</sup> In our cases, a very limited hypoechoic parietal nodule was observed in all patients for whom ultrasonography was performed. Endometriomas can measure between 5 mm and 200 mm.<sup>[4,9]</sup> Most lesions

measure less than 40 mm.<sup>[21]</sup> In our patients, they measured 30 to 40 mm in diameter in seven cases and 70 mm in one case. The color Doppler ultrasound shows an often highly vascularized mass with dilated afferent vessels.<sup>[21]</sup> Despite the absence of a specific ultrasound aspect of parietal endometriosis, ultrasound associated with the history of the disease should help to suspect the diagnosis of parietal endometriosis and exclude certain differential diagnoses. The differential diagnoses of a parietal mass on ultrasound are granulomas on scarring, post-operative events, benign tumours and exceptionally malignant tumours such as lymphomas and sarcomas. Granulomas may appear hypoechoic. They sit in contact with the scar. They cannot be differentiated from small wall endometriomas outside a catamenial context. In the case of postoperative echogenicity, echogenicity is variable depending on the contents of the sac, but the clinical examination is often evocative.<sup>[18,21]</sup> The differential diagnosis of spontaneous umbilical endometriosis is made with an irreducible umbilical hernia, pyogenic or foreign body granulomas, hemangioma, umbilical localization of Crohn's disease or melanoma. But it is especially with umbilical metastases of abdominopelvic tumors, or Sister Mary Joseph's nodule, that this diagnosis must be differentiated, especially in women.<sup>[2-5]</sup>

CT and MRI scans can be used to diagnose parietal endometriosis.<sup>[20-21]</sup> However, most authors report the absence of characteristic signs in imaging because the aspects observed depend on several parameters: distribution between stromal tissue and glandular elements, hemorrhagic character of the lesion and importance of the peripheral inflammatory reaction.<sup>[21]</sup> The diagnosis was made preoperatively by CT scan in four of our patients, showing an isodense tissue lesional process, anterior and medial parietal, infiltrating subcutaneous fat and underlying muscles. MRI, more than CT scan, is the examination of choice to confirm the diagnosis in case of doubt because it allows to highlight the iron content of the haemosiderin deposits in endometriomas. Observations of parietal endometrioma on MRI are exceptional. MRI is more sensitive than CT for the detection of small lesions.<sup>[20-21]</sup> The lesion signal is variable depending on whether the lesion is acute, hypersignal T1 and T2 or chronic, heterogeneous signal, and whether there is intra-lesional hemorrhage.<sup>[20]</sup> MRI was not performed in any of our patients. Thus, although it may be clinically suspected, parietal endometriosis can only be diagnosed by pathological examination of the lesion. Indeed, this is typical and highlights the existence of endometrial glands of varying sizes, often of cystic type, associated with a cytogenic chorion and lymphocyte inflammation. The ectopic situation of these endometrial glands thus corresponds to the diagnosis of external endometriosis.<sup>[4,9]</sup> Immunohistochemical techniques steroid receptor assays, using specific monoclonal antibodies, find estradiol and progesterone receptors in both the glandular and stroma, but the distribution is very heterogeneous.<sup>[4,22-25]</sup> Recent progress

in immunohistochemistry has shown that CD 10 is not expressed in glandular epithelial cells in endometriosis, but rather in the stroma, whereas it is expressed in other epithelial cells.<sup>[22]</sup> In contrast, COX-2, a prostaglandin hydroperoxidase, is expressed in the endometrium with production of PGE2 and PGF2 $\alpha$ .<sup>[22-23]</sup>

The combination of estrogen or progesterone receptor antibodies on the nuclei and CD10 or COX-2 antibodies on the cytoplasm may increase the certainty of diagnosis for ectopic endometriosis.<sup>[22-25]</sup> The treatment of these lesions is based on surgical excision. Surgical excision should be as wide as possible to remove the entire lesion, as the lesion may recur in the event of incomplete excision. It is the only way to confirm the diagnosis by pathological examination and to achieve healing.<sup>[1,4-6,29]</sup> Surgical treatment remains the most effective, especially since cancerization of parietal endometriosis has been described.<sup>[26-27]</sup> Indeed, although medical treatment (LHRH agonists or progestins) can improve the symptomatology by reducing the pain and inflammation of the lesions, it cannot bring about a cure and the lesions quickly recur when these therapies are stopped.<sup>[28-29]</sup> All our patients were treated by surgical excision. One patient had two recurrences for which she had undergone resections. Two patients were treated with LHRH agonists, one preoperatively in front of a 70 mm endometrioma and the second after surgical removal to prevent recurrence. The surgical procedure can be disruptive, and parietal reconstruction often requires the use of devices such as nonabsorbable thread mesh to reinforce the aponeurotic scars.<sup>[6,29]</sup> In one of our patients, the repair of the fascial defect, which had spread over 10/10 cm, was performed with sufficient external oblique flaps over 7 cm subumbilically. This repair is reinforced by a plate on the omentum. Prevention may be proposed in patients with pelvic endometriosis lesions, without any evidence of efficacy. It consists of protecting the wall with surgical drapes during Caesarean section, irrigation or pressure saline cleansing of the wall at the end of the Caesarean section.<sup>[4,6,29]</sup> During the closure of a hysterotomy, it is necessary to ensure the quality of the closure and to put back in place any endometrial invagination, all the more so as the Caesarean section is performed early in the pregnancy.<sup>[4,6]</sup>

## 5. CONCLUSION

Parietal endometriosis is an infrequent and often unrecognized condition. Scarring endometriosis must be mentioned in front of any mass sitting on the scar from a gynecological-obstetrical operation. The diagnosis should be made in the presence of pain or a mass in the abdominal wall of a woman during genital activity, especially if this lesion presents catamenial changes and if the patient has a history of gynecological or obstetrical surgery. Color Doppler ultrasound is the morphological examination of choice to confirm the diagnosis and rule out other parietal pathologies by showing a hypervascularized hypoechoic mass. Due to the wide diffusion of CT scans, it is important for radiologists to

be aware that these lesions appear as tissue nodules in the vicinity of a scar from obstetric or gynecological surgery. In case of diagnostic doubt before surgery, MRI has a definite place to detect the particular signal of hemorrhage in the endometrioma and confirm the diagnosis. However, the diagnosis is only confirmed by histological study. Healing is achieved by complete excision of the mass.

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