

Ectopic decidua mimicking metastatic lesions - Report of three cases and review of the literature

**A. Kondi-Pafiti¹, Assoc. Prof.; D. Grapsa¹, Pathology Resident;
K. Kontogianni-Katsarou¹, Res. Fellow; K. Papadias², Assoc. Prof.; E. Kairi-Vassilatou¹, Assist. Prof.**

¹Pathology Department and ²2nd Clinic of Obstetrics and Gynecology,
Areteion University Hospital, Athens Medical School, Athens (Greece)

Summary

The development of ectopic decidua is generally considered as a physiologic phenomenon of pregnancy, even though it has been occasionally noted in non-pregnant women. We present three cases of ectopic decidua located in the greater omentum and discuss the histopathologic characteristics, as well as the problems encountered in the differential diagnosis from metastatic lesions. Decidual transformation of the omentum could simulate, both grossly and microscopically, malignant neoplastic lesions such as malignant deciduoid mesothelioma, metastatic mucin-producing adenocarcinoma or even metastatic squamous carcinoma. The application of immunohistochemistry is essential for the establishment of the diagnosis, especially in the presence of deceptively atypical vacuolated cells resembling carcinoma cells. Ectopic decidua does not require any therapeutic intervention because it usually regresses postpartum without any complications.

Key words: Decidua; Peritoneum; Omentum; Metastasis.

Introduction

Ectopic decidual reaction of peritoneal subcoelomic mesenchymal cells has been mainly reported in the ovarian surface, the uterine serosa and the cervix [1]. Less frequent sites of ectopic decidua are the greater omentum, the subcapsular region of peritoneal lymph nodes and other organs in the pelvic and abdominal cavity [2]. The development of ectopic decidua is generally considered as a physiologic phenomenon of pregnancy, arising from a progesterone-induced metaplasia of the coelomic stroma, even though it has been occasionally noted in non-pregnant perimenopausal women [2, 3]. It has also been associated with the administration of progestational agents, trophoblastic disease, hormonally active lesions of the ovary and adrenal, near a persistent corpus luteum, or after radiation therapy [4]. We report three cases of ectopic decidua located in the greater omentum and discuss the histopathologic and immunohistochemical characteristics, as well as the problems in the differential diagnosis from metastatic lesions.

Cases

Case 1: An omentum biopsy was taken during a cesarean section from a 29-year-old woman because of the presence of a grossly evident omental lesion measuring 3.5 cm in diameter, with hemorrhagic infiltration, suggesting endometriosis. Microscopic examination revealed the presence of large cells, single or in clusters, with associated inflammation. The cells had abundant vacuolized cytoplasm which gave the impression of a mucinous accumulation (Figure 1). Focally, the cells presented an eosinophilic cytoplasm, suggesting decidua. Histological and immunohistochemical examination was consistent with an extensive, partly atypical decidual reaction of the sub-mesothelial stroma of the omentum.

Case 2: A 35-year-old pregnant woman (gestational age: 37 wks) underwent laparotomy for the removal of a tumorous mass, 3 cm in the largest diameter, in the left ovary. During the procedure, an omentum biopsy was taken because of the presence of grossly evident lesions which gave the impression of peritoneal implants of the mass. Microscopic examination of the ovarian tumour showed an extensive thecomatosis and sub-epithelial decidual reaction of the ovarian stroma extending to the tubal serosa and the mesovarium. Pathologic examination of the omentum biopsy showed the development of multiple polypoid nodules composed of decidual cells, mostly under the mesothelium (Figure 2).

Case 3: A 42-year-old patient with a long history of endometriosis, under long-term therapy with progestational agents, underwent laparoscopic examination because of a cystic lesion in the left ovary. During the examination, multiple whitish or hemorrhagic nodules measuring 0.3-0.6 cm were observed on the peritoneal surfaces and omentum. The ovarian cyst was endometriotic and the nodules were consistent with foci of endometriosis with extensive decidual reaction of the stroma (Figure 3).

Discussion

Previous studies of the ovary at term have suggested that decidual transformation of the ovary could be a typical, even invariable phenomenon of pregnancy [2, 5, 6]. Ectopic decidua in sites other than the ovaries, cervix and uterus have been only sporadically reported in the past [7]. However, in a recent study ectopic decidua was detected in 100% of omentum biopsies taken during cesarean sections and in tubal pregnancies [8]. In another study, decidual reaction was found in 30.8% of uteri removed during pregnancy [9].

In general, the exact incidence of ectopic decidua cannot be easily estimated, because it usually presents as an incidental microscopic finding [2]. However, macro-

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Fig. 1

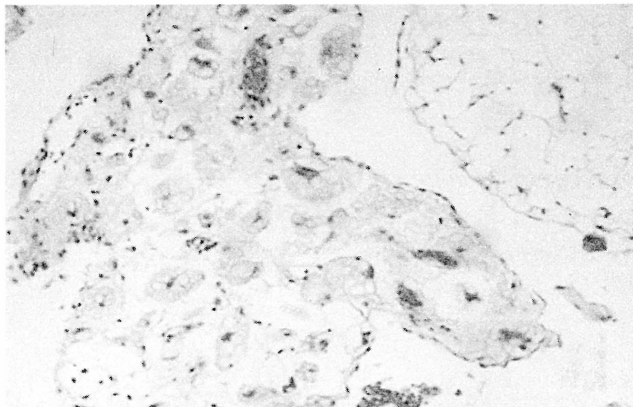


Fig. 3

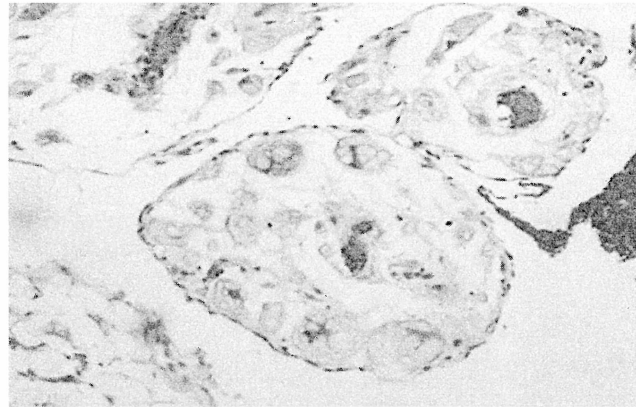
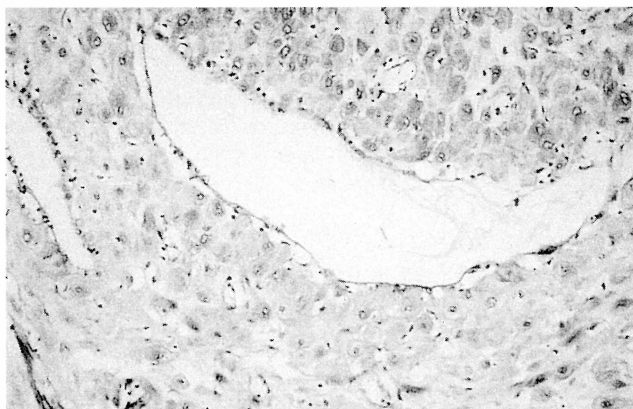


Fig. 2

Figure 1. — Histological section of ectopic decidual cells with vacuolized cytoplasm (hematoxylin-eosin x 250).

Figure 2. — A polypoid omental nodule composed of ectopic decidua (hematoxylin-eosin x 250).

Figure 3. — Endometriotic lesion of the omentum showing extensive decidual stromal reaction surrounding a gland (hematoxylin-eosin x 250).

scopically visible ectopic decidua of the omentum has been discovered during cesarean sections or postpartum tubal ligation, and described as multiple gray to white or hemorrhagic nodules or plaques [10]. These totally benign lesions do not usually produce any symptoms and regress completely post-partum [1, 8]. Extremely rare complications such as abdominal pain, massive endoperitoneal hemorrhage or even death, have been, nevertheless, reported [11, 12].

According to most authors, ectopic decidua is a physiologic hormone-dependent phenomenon, that resembles endometriosis in topography and mechanism, even though it represents a distinct clinicopathologic process [2, 13]. Indeed, in both of our cases of pregnancy-associated ectopic decidua, there was no clinical or pathologic indication of endometriosis. Nevertheless, in the non-pregnant woman, ectopic decidua developed on the foci of endometriosis, after long-term administration of progestational agents. We believe that in this case a pathogenetic relationship between endometriosis and the subsequent formation of ectopic decidua should not be excluded.

Decidual transformation of the omentum could simulate, both grossly and microscopically, malignant neoplastic lesions, such as malignant deciduoid mesothelioma, metastatic mucin-producing adenocarcinoma or even metastatic squamous carcinoma [4, 10, 14]. The correct diagnosis by the pathologist is of great importance for the avoidance of such major pitfalls. Microscopic examination of ectopic decidua shows decidual

cells under the peritoneal mesothelium, single or in clusters with an occasional admixture of smooth muscle cells. [2, 15]. Marked vascularity and lymphocytic infiltrations can also be present [10]. Recognition of the typical appearance of decidual cells is essential for the establishment of the diagnosis. However, it should be noted that the presence of nuclear atypia (hyperchromasia and pleomorphism) and focal hemorrhagic necrosis may give rise to a false impression of malignancy if mitotic activity is not carefully evaluated [10, 16, 17]. In certain cases, the absence of mitoses is necessary in order to differentiate ectopic decidua from malignant deciduoid mesothelioma [10]. On rare occasions, ectopic decidual cells may exhibit eccentric nuclei and enclose cytoplasmic vacuoles filled with baseophilic mucin, thus mimicking a metastatic mucin-producing adenocarcinoma [10]. In the first of our cases the presence of nuclear atypia and mucinous differentiation posed diagnostic difficulties, which were resolved after the evaluation of mitoses. Histochemistry was positive for proteoglycans (PAS positive) and negative for epithelial mucin (Alcian blue negative). An immunohistochemical study was performed by the VENTANA automatic system for the investigation of CEA (MoAb clone-parlam 4, Monosan) CA-125 (MoAb, Serotec), EMA (MoAb, Serotec), Cytokeratin 7 (OVTL 12/30, Monosan), Cytokeratin 20 (Ks 208, Monosan) that showed a negative immunostain reaction, and for Vimentin (VIM3B4, Novocastra) which showed a positive immunostain reaction. These findings confirmed the histological diagnosis of ectopic decidua.

It should be noted that due to the benign and transient nature of the lesion there is no need for radical operations or any therapeutic intervention [18]. The rare complications previously mentioned should of course be treated accordingly.

Conclusion

Ectopic decidua of the greater omentum is a benign lesion usually associated with pregnancy which totally regresses postpartum. In non-pregnant women with ectopic decidua a pathologic relationship with endometriosis should be considered. Correct diagnosis by the pathologist is essential to avoid useless and potentially harmful surgical interventions. Histopathologic diagnosis is based on the characteristic appearance of decidual cells, while the presence of nuclear atypia or mucinous differentiation may pose diagnostic difficulties. The absence of mitoses and the application of immunohistochemistry may help in resolving these difficult cases.

References

- [1] Piccini D.J., Spitale L.S., Cabalier L.R., Dionisio de Cabelier M.E.: "Decidua in the peritoneal surface mimicking metastatic nodules. Findings during cesarean section". *Rev. Fac. Cien. Med. Univ. Nac. Cordoba*, 2002, 59, 113.
- [2] Zaytsev P., Taxy J.B.: "Pregnancy-associated ectopic decidua". *Am. J. Surg. Pathol.*, 1987, 11, 526.
- [3] Ober W.B., Grady H.G., Schoenbuecher A.K.: "Ectopic ovarian decidua without pregnancy". *Am. J. Pathol.*, 1957, 33, 199.
- [4] Bell D.A.: "Pathology of the peritoneum and secondary Mullerian system". In : Fox H.: Haines and Taylor. *Obstetrical and Gynaecological Pathology*. New York, Churchill Livingstone, 1995, 1009.
- [5] Israel L.: "The ovary at term: decidua-like reaction and surface cell proliferation". *Obstet Gynecol.*, 1954, 3, 399.
- [6] Herr J.C., Heidger P.M. Jr., Scott J.R., Anderson J.W., Curet L.B., Mossman H.W.: "Decidual cells in the human ovary at term. I. Incidence, gross anatomy and ultrastructural features of merocrine secretion". *Am. J. Anat.*, 1978, 152, 7.
- [7] Kularbkaew C., Yutanawiboonchai W., Pairojkul C.: "Molar pregnancy-associated ectopic decidua; report of a case and review of the literature". *J. Med. Assoc. Thai.*, 1998, 81, 918.
- [8] Buttner A., Bassler R., Theele C.: "Pregnancy-associated ectopic decidua (deciduosis) of the greater omentum. An analysis of 60 biopsies with cases of fibrosing deciduosis and leiomyomatosis peritonealis disseminata". *Pathol. Res. Pract.*, 1993, 189, 352.
- [9] Schneider V., Barnes L.A.: "Ectopic decidual reaction of the uterine cervix : frequency and cytologic presentation". *Acta Cytol.*, 1981, 25, 616.
- [10] Clement P.B., Young R.H., Scully R.E.: "Female reproductive system and reproduction". In: Carter D, Reuter VE, Greenson JK, Stoler MH, Oberman HA (eds.). *Sternberg's Diagnostic Surgical Pathology*. Philadelphia, Lippincot Williams and Wilkins, 2004, 2699.
- [11] Richter M.A., Choudhry A., Barton J.J., Merrick R.E.: "Bleeding ectopic decidua as a cause of intraabdominal hemorrhage. A case report". *J. Reprod. Med.*, 1983, 28, 430.
- [12] Hulme-Moir I., Ross M.S.: "A case of early postpartum abdominal pain due to haemorrhagic deciduosis peritonei". *J. Obstet. Gynaecol. Br. Commonw.*, 1969, 76, 746.
- [13] Rewell R.E.: "Extra-uterine decidua". *J. Pathol.*, 1971, 105, 219.
- [14] Cobb C.J.: "Ectopic decidua and metastatic squamous carcinoma: presentation in a single pelvic lymph node". *J. Surg. Oncol.*, 1988, 38, 126.
- [15] Herr J.C., Platz C.E., Heidger P.M. Jr., Curet L.B.: "Smooth muscle within ovarian decidual nodules: a link to leiomyomatosis peritonealis disseminata?". *Obstet. Gynecol.*, 1979, 53, 451.
- [16] Talerman A., Montero J.R., Chilcote R.R., Okagaki T.: "Diffuse malignant peritoneal mesothelioma in a 13-year-old girl. Report of a case and review of the literature". *Am. J. Surg. Pathol.*, 1985, 9, 73.
- [17] Nascimento A.G., Keeney G.L., Fletcher C.D.: "Deciduoid peritoneal mesothelioma. An unusual phenotype affecting young females". *Am. J. Surg. Pathol.*, 1994, 18, 439.
- [18] Clement P.B.: "Tumor-like lesions of the ovary associated with pregnancy". *Int. Gynecol. Pathol.*, 1993, 12, 108.

Address reprint requests to:
A. KONDI-PAFITI, M.D.
Associate Professor
Pathology Laboratory
Aretaieion Hospital
Vas Sofias 76
Athens 11528 (Greece)

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