

DIFFUSE ECTOPIC DECIDUOSIS MIMICKING AS PERITONEAL CARCINOMATOSIS: A CASE REPORT OF A YOUNG FEMALE WITH MULTIPLE SEROSAL AND OMENTAL NODULES FOUND DURING A CAESARIAN SECTION

Rajia Liaqat,¹ Firdous Iqbal,² Amna Rehman³

Abstract

Background & Objectives: Ectopic deciduosis refers to an abnormal occurrence of decidual tissue beyond the endometrium, predominantly on the surface of the uterus, fallopian tubes, ovaries and omentum. Diffuse omental and perito-neal involvement is a perplexing manifestation that may mimic peritoneal carcinomatosis. It is not accompanied by any symptoms and complications in most of the cases and does not require treatment. However, rarely it can present with acute abdomen or imitate peritoneal malignancy and, thus, associated with diagnostic difficulties and unnecessary interventions. Aim of this case report is to describe a rare case of peritoneal deciduosis in a young female, found incidentally, during a caesarean section, mimicking metastatic nodules. A futile hysterec-tomy along with omentectomy was performed.

Methods: A case of diffuse ectopic deciduosis mimicking as peritoneal carcinomatosis in a 29 years young female with full term pregnancy was found during a lower segment caesarian section, undertaken in a tertiary care teaching hospital of Lahore, Pakistan. The histopathological diagnosis was based on common technique of paraffin embedding and hematoxylin-eosin staining along with ancillary immune-histochemical evaluation.

Results: Histopathological evaluation showed ectopic decidual tissue consisted of solid nests and loosely cohesive aggregates; large polygonal cells with abundant granular eosinophilic cytoplasm; sharply defined cell borders, bland nuclei with dispersed chromatin and single conspicuous nucleoli on the surface of uterus and in omental fat. Weak staining for CD30 was observed in the decidual cell cytoplasm and negative staining for CK and Calretinin in decidual cells was found. Calretinin and CK highlight benign mesothelial cells and help to rule out differentials of mesothelioma and metastatic carcinoma.

Conclusion: Peritoneal deciduosis represents a rare entity and it is important to consider this condition in patients, especially in pregnant women, to prevent unnecessary intervention. In addition, distinguishing this condition from malignant neoplasms will help in deciding correct treatment options.

Key words: Diffuse Ectopic deciduosis, peritoneal carcinomatosis, Caesarian section, multiple serosal nodule, omental nodule, decidua tissue, Uterus, Stromal cell

How to cite: Liaqat R, Iqbal F, Rehman A. Diffuse Ectopic deciduosis mimicking as peritoneal carcinomatosis: A case report of a young female with multiple serosal and omental nodules found during a caesarian section. *JAIMC* 2022;20(2): 115-119

1. Department of Pathology Al-Aleem Medical College /Gulab Devi Teaching Hospital Lahore
2. Department of Pathology Al-Aleem Medical College /Gulab Devi Teaching Hospital Lahore
3. Gulab Devi Teaching Hospital Lahore

Correspondence:

Dr Rajia Liaqat, Associate Professor (Histopathology), Department of Pathology, Al-Aleem Medical College /Gulab Devi Teaching Hospital Lahore. Email:rajiaijaz@gmail.com

Submission Date: 06-04-22
1st Revision Date: 10-05-22
Acceptance Date: 11-06-22

Ectopic deciduosis refers to an abnormal occurrence of decidua tissue outside the uterus.^{1,2} It is stated to originate from sub-serous stromal cells as a result of progesterone stimulation.^{1,3} The ectopic decidua appears on the surface of the female reproductive organs and peritoneum; however, on rare occasions, it can be found in the lymph nodes, lungs, kidneys, and skin.⁴⁻⁸ Ectopic decidua have been detected in biopsies taken during caesarean sections, elective tubal ligations, appendectomy and in tubal pregnancies.¹ Deciduosis is

a benign condition which typically does not cause any symptoms and resolves spontaneously four to six weeks after labor.^{9,10} However, ectopic decidua involving the appendicular wall often results in appendicitis and can present with signs of acute abdomen.^{11,13} Diffuse omental and peritoneal involvement is another confusing manifestation that may mimic peritoneal carcinomatosis and mislead treating physicians.^{3,10,14} A combination of both emergency surgical and oncology-like presentations of ectopic deciduosis may even be more diagnostically challenging making physicians prone to hasty clinical decisions. We are presenting a rare case of peritoneal deciduosis in a young female, found incidentally during a caesarean section, mimicking metastatic nodules for which hysterectomy along with staging surgery was performed. The histopathological diagnosis was based on common technique of paraffin embedding and hematoxylin-eosin staining along with ancillary immunohistochemical evaluation.

Case Presentation

A 29-years old female at full-term (gravida 2, parity 1) was diagnosed with ovarian cyst on routine obstetrical scan. Lower segment caesarean section was performed at a teaching hospital of Lahore, Pakistan. During surgery, hysterectomy was done because of uncontrolled bleeding and on finding multiple serosal nodules on posterior surface of uterus. It was observed that broad ligament, pelvic peritoneum, ovaries, and omentum were also studded with numerous whitish papules, varying from 1- 5 millimeters (Fig 1). Suspecting the peritoneal nodules as carcinomatosis and considering ovarian, tubal and peritoneal cancer in differential diagnosis, hysterectomy with bilateral salpingo-oophorectomy was performed. Omental and multiple peritoneal biopsies for staging purpose were taken. The final pathology of sampled tissues did not find any signs of malignancy. Histopathological analysis showed sub-mesothelial solid nests and loosely cohesive aggregates of large polygonal cells with abundant granular eosinophilic cytoplasm having sharply defined cell borders; bland nuclei with dispersed chromatin and single conspicuous nucleoli on the surface of uterus and in omental fat were also found (Figures 2-a, 2-b,

2-c, 2-d).

The immune-histochemical (IHC) stains CD30, CK, Calretinin and Ki 67 were conducted for confirmation of diagnosis. CD30 was weak positive (Figure-3), but there was no staining for Calretinin, cytokeratin (Figure 3-a, 3-b), Ki-67 was low (Figure-3-d) which is consistent with deciduosis criteria. After delivery, the 2.5 kg male baby was born. The patient recovered uneventfully and was discharged on the 4th post-operative day.



Figure 1: Surgical section of Uterus showing multiple nodules on serosal surface in a young female underwent lower segment Caesarian section

Figure 2: Histopathological sections showing decidual tissue in varied magnifications: **Figure 2a** showing low power view of omentum showing decidua; **Figure 2b:** Medium power showing nests of pink eosinophilic cells in the center surrounded by adipose tissue; **Figure 2c:** High power view showing decidua in omentum; **Figure 2d:** High power view showing pink eosinophilic decidual cells on serosal surface of uterus

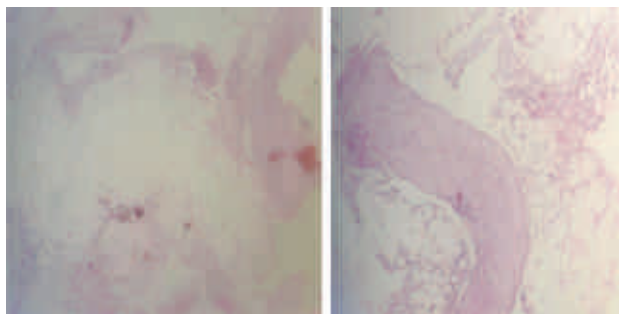


Figure 2-a (4X)-
Hematoxylin & Eosin

Figure 2-b (10X)-
Hematoxylin & Eosin

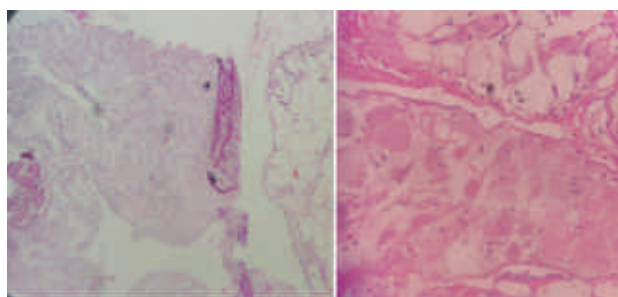


Figure 2-c (40X)-
Hematoxylin & Eosin

Figure 2-d (40X)-
Decidua on serosal
surface of uterus

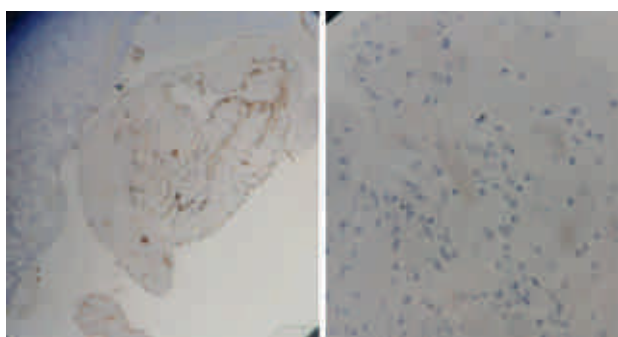


Figure 3-a (10X)

Figure 3-b (40X)

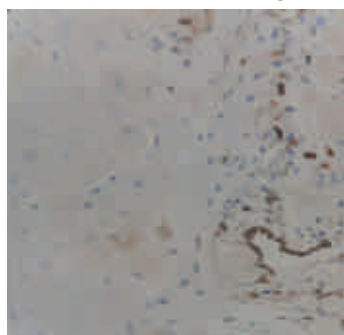


Figure 3-c (40X)

Figure 3a: Calretinin Immuno-histochemical stain highlighting normal mesothelial cells on surface (brown staining) and negative in decidual cells (blue staining); **Figure 3b:** Weak positive staining of CD 30 in decidual cells; **Figure 3c:** Cytokeratin immuno-histochemical stain highlighting mesothelial cells and negative in decidual cells

DISCUSSION

This case demonstrates management challenges that physicians may face due to an uncommon presentation of ectopic deciduosis. As a rule, this obstetric condition does not cause any symptoms or laboratory abnormalities and resolves spontaneously 4-6 weeks

after delivery,^{1,9,14} however, if the appendix wall undergoes a decidual transformation, it can lead to appendi-

Table 1: Immuo-histochemical evaluation of deciduosis, metastatic carcinoma & mesothelioma

	CD30	CK	Calretinin
Mesothelioma	Negative	Positive	Positive
Metastatic carcinoma	Negative	Positive	Negative
Deciduosis	Weak Positive	Negative	Negative

citis with typical clinical and laboratory characteristics.^{11,13} Moreover, there are a number of reports describing other urgent manifestations caused by diffuse ectopic deciduosis including intraperitoneal hemorrhage, tubo-ovarian abscess, bowel obstruction, and dystocia.¹¹ In the presented case, the symptoms and physical examination was inconspicuous. The patient was diagnosed with ovarian cyst on routine obstetric scan. Unfortunately, ectopic deciduosis itself is usually unseen on imaging due to the insufficient size of nodules and indifferent tissue density. In the present case, ultrasonography reveals an ovarian cyst and cystectomy was planned during elective caesarean section. The macroscopic appearance of the ectopic decidua is insidious as it lacks specific features and can be easily mistaken for a tumor. In general, it presents as small yellow to tan elastic, sometimes focally hemorrhagic, nodules or plaques localized on the surface of the uterus, fallopian tubes, ovaries, pelvic peritoneum and omentum without any exudate.^{1,2,4,9} Diffuse involvement of the peritoneum and abdominal organs is rare and thus can be especially challenging for diagnosis because it imitates peritoneal carcinomatosis.^{3,9,10,14} In the present case, numerous small yellow nodules covering the uterus, fallopian tubes, enlarged ovaries, peritoneum and omentum. The gynecologist interpreted the intraoperative findings as carcinomatosis from the ovarian primary tumor. Although the incidence of ovarian, tubal, and peritoneal cancer during pregnancy is low, it remains the most common origin of peritoneal carcinomatosis. Microscopic examination of the lesions demonstrates large spindle, oval and polygonal cells with abundant granular eosinophilic cytoplasm, sharply defined cell borders, bland nuclei with dispersed chromatin and single conspicuous nucleoli forming bundles and swirls (H&E,

magnification ×400).

The striking macroscopic resemblance of deciduositis with peritoneal carcinomatosis contributed to major departure from common sense and unnecessary further surgery.^{15,16} Analyzing the case retrospectively, the initial intervention should have been limited to peritoneal and omental biopsies or frozen section which are sufficient for establishing a diagnosis when ovarian cancer is suspected.¹⁷

Generally, ectopic deciduositis is a self-limited condition that resolves completely in the early postpartum period and on its own not requiring any treatment.⁹ However, surgical intervention may be needed in case of acute appendicitis or a tubo-ovarian abscess caused by the decidual transformation of corresponding tissues.^{11,12} Other rare complications including intra-peritoneal hemorrhage and bowel obstruction may also require surgery when they do not respond to conservative measures.¹⁸⁻²⁰ Pregnancy management is another important component of care of these patients.

The intensive diffuse cytoplasmic expression of CD30 in decidualy transformed cells (magnification × 400), majority of cases will end with at-term delivery.^{9,10} In the case of such a challenging manifestation of ectopic deciduositis such as peritoneal lesions, we also recommend a surgical oncologist consultation for comprehensive differential diagnosis and deliberate decision-making. Importantly, regardless of clinical presentation, if the surgery is performed, it should always include sufficient biopsy of the decidua for further histopathology evaluation. A thorough pathological assessment of surgical specimens, which is the key in making a diagnosis of ectopic deciduositis, requires time and resources and cannot be performed intraoperatively with frozen sections. Decidual tissue is benign so it typically does not demonstrate increased mitotic activity, nuclear pleomorphism, necrosis, and vascular invasion.¹² A broad IHC assay should be also performed to distinguish the ectopic decidua from some neoplasms that have similar macro- and microscopic appearance.² The expression of PR, ER, vimentin, desmin, CD30 and CD-10 showed to be specific for deciduositis, while CK, calretinin and cytokeratin 5/6

positivity supports deciduoid malignant mesothelioma.^{2,9,14} To rule out metastatic melanoma, IHC should demonstrate negativity for HMB-45 and S-100 protein stains, while the negativity for c-kit (CD117) excludes gastrointestinal stromal tumors,^{2,14} sufficient biopsy and meticulous pathology evaluation with the IHC analysis are crucial for accurate diagnosis of ectopic deciduositis.

CONCLUSIONS

The presented case demonstrates diagnostic challenges caused by an uncommon manifestation of ectopic deciduositis that led to extensive surgery (hysterectomy). This benign obstetric condition should be considered for differential diagnosis when the peritoneal spread of tumor-like lesions is found during pregnancy and in the early postpartum period. Sufficient but not excessive biopsy of suspicious nodules is required for an accurate diagnosis. We believe that our clinical experience and its analysis will aid physicians in the reasonable management and would reduce the risk of undesirable interventions.

Conflicts of interest

None

Funding sources

None

REFERENCES

1. Zaytsev P, Taxy JB. Pregnancy-associated ectopic decidua. *The American journal of surgical pathology*. 1987 Jul 1;11(7):526-30.
2. Bolat F, Canpolat T, Tarim E. Pregnancy-related peritoneal ectopic decidua (deciduositis): morphological and clinical evaluation. *Turk Patoloji Derg*. 2012 Jan 1;28(1):56-60.
3. Kondi-Pafiti A, Grapsa D, Kontogianni-Katsarou K, Papadias K, Kairi-Vassilatou E. Ectopic decidua mimicking metastatic lesions-report of three cases and review of the literature. *European journal of gynaecological oncology*. 2005 Aug 10;26(4):459-61.
4. Markou GA, Goubin-Versini I, Carbanaru OM, Karatzios C, Muray JM, Fysekidis M. Macroscopic deciduositis in pregnancy is finally a common entity. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2016 Feb 1;197:54-8.
5. Burnett RA, Millan D. Decidual change in pelvic lymph nodes: a source of possible diagnostic error. *Histopathology*. 1986 Oct;10(10):1089-92.

6. Flieder DB, Moran CA, Travis WD, Koss MN, Mark EJ. Pleuro-pulmonary endometriosis and pulmonary ectopic decidualization: a clinicopathologic and immunohistochemical study of 10 cases with emphasis on diagnostic pitfalls. *Human pathology*. 1998 Dec 1;29(12):1495-503.
7. Fair KP, Patterson JW, Murphy RJ, Rudd RJ. Cutaneous decidualization. *Journal of the American Academy of Dermatology*. 2000 Jul 1;43(1):102-7.
8. Bettinger HF. Ectopic decidua in the renal pelvis. *The Journal of Pathology and Bacteriology*. 1947 Oct;59(4):686-7.
9. Büttner A, Bässler R, Theele CH. Pregnancy-associated Ectopic Decidua (Deciduosis) of the Greater Omentum*: An Analysis of 60 Biopsies with Cases of Fibrosing Deciduosis and Leiomyomatosis Peritonealis Disseminata. *Pathology-Research and Practice*. 1993 Apr 1;189(3):352-9.
10. Cruz DB, Dhameer T, da Rocha VW, Dupont RF. Diffuse peritoneal decidualization mimicking metastatic lesions. *Case Reports*. 2014 Feb 13;2014:bcr2013202480.
11. Dogan E, Okyay E, Saatli B, Olgan S, Sarioglu S, Koyuncuoglu M. Tuba ovarian abscesses formation from decidualized ovarian endometrioma after appendiceal endometriosis presenting as acute appendicitis in pregnancy. *Iranian journal of reproductive medicine*. 2012 May;10(3):275.
12. Balta A, Lubgane M, Orube I, Ziemele G, Gardovskis J, Strumfa I. Deciduosis of the appendix manifesting as acute abdomen in pregnancy. *Acta Chirurgica Lati-viensis*. 2014;14(1):43.
13. Löfwander M, Haugen G, Hammarström C, Røkke O, Mathisen Ø. A pregnant woman with abdominal pain and fever. *Tidsskrift for den Norske Laegeforening: Tidsskrift for Praktisk Medicin, ny Raekke*. 2007 Oct 1;127(19):2528-9.
14. Adhikari LJ, Shen R. Florid diffuse peritoneal decidualization mimicking carcinomatosis in a primigravida patient: a case report and review of the literature. *International Journal of Clinical and Experimental Pathology*. 2013;6(11):2615.
15. Palmer J, Vatish M, Tidy J. Epithelial ovarian cancer in pregnancy: a review of the literature. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2009 Mar;116(4):480-91.
16. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*. 2018 Nov;68(6):394-424.
17. Marret H, Lhommé C, Lecuru F, Canis M, Lévêque J, Golfier F, Morice P. Guidelines for the management of ovarian cancer during pregnancy. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2010 Mar 1;149(1):18-21.
18. O'Leary SM. Ectopic decidualization causing massive postpartum intraperitoneal hemorrhage. *Obstetrics & Gynecology*. 2006 Sep 1;108(3):776-9.
19. Heidegger H, Hümpfner A, Hugo RV, Schulz W. Peritoneale Deziduose: Ursache für einen mechanischen ileus in der Schwangerschaft. *Geburtshilfe und Frauenheilkunde*. 1991 Apr;51(04):307-9.
20. Richter MA, Choudhry A, Barton JJ, Merrick RE. Bleeding ectopic decidua as a cause of intraabdominal hemorrhage. A case report. *The Journal of reproductive medicine*. 1983 Jun 1;28(6):430-2.