



A Study Ovarian Masses Associated With Pregnancy

Dr. Majety Dora Venkata Ramnath¹, Dr. Siva Ranjan D²

1) Associate Professor, Nimra Institute of Medical Sciences.

2) Professor, Nimra Institute of Medical Sciences. (Corresponding author)

Date of Submission: 20-06-2024

Date of Acceptance: 30-06-2024

ABSTRACT

Background: Pregnancy luteomas are rare non-neoplastic tumor like mass of the ovary. They are usually asymptomatic and found incidentally during imaging or surgery. They regress spontaneously after delivery.

Materials and methods: A two year prospective study was done on 270 pregnant women who underwent cesarean section. Intra-operatively surgeons found ovarian masses in few patients, suspecting to be an ovarian neoplasm. salpingo-oophorectomy was performed in those patients. The specimens were submitted for histopathological examination in 10% formalin.

Results: Out of 270 cesarean section, ovarian mass were found incidentally in seven (2.5%) cases out of which three (1.1%) were luteomas. Histopathological examination showed features of luteoma of pregnancy.

Conclusion: Recognition of this entity is important so that unnecessary oophorectomy, with concomitant risk to both the mother and the fetus, is avoided.

Key words: Cesarean section, oophorectomy, ovary, pregnancy luteoma

I. BACKGROUND:

Pregnancy luteoma was first described by Sternberg and Barclay in 1966. ⁽¹⁾ Most cases resolve completely during the period of postpartum. ⁽²⁾ In general, luteomas are asymptomatic and are found incidentally at the time of cesarean section or postpartum tubal ligation. ⁽³⁾ Luteoma of pregnancy is a benign, hyperplastic tumor like lesion of the ovary. An accurate diagnosis is important for both mother and fetus since it can be confused with ovarian malignancy leading to unnecessary oophorectomy, with concomitant risk to both mother and fetus. ⁽⁴⁾ Hyper secretion of androgens occurs in approximately 25% of women with pregnancy luteoma; from 10% to 50% of these women will show clinical signs of hyperandrogenism and 60% to 70% of female infants born to masculinized mothers will themselves exhibit some degree of virilization. ⁽⁵⁾

II. MATERIALS AND METHODS:

This is the prospective study conducted in a teaching hospital for a period of two years. All pregnant women who underwent cesarean section in teaching hospital were included in the study. The age groups of the patients included in the study were between 25 years to 40 years. Pregnant women below 25 years and above 40 years were excluded from the study. During cesarean section the incidentally found ovarian masses were suspecting to be an ovarian neoplasm were removed by performing salpingo-oophorectomy. After procedure the specimens was submitted for histopathological examination in 10% formalin. The specimens were fixed overnight in 10% formalin and tissue processing were started and submitted to pathologist for histopathological diagnosis.

III. RESULTS :

In the present prospective study out of 270 cesarean sections which were performed on pregnant women, ovarian mass were found incidentally in seven (2.5%) cases out of which three (0.6%) were luteomas, two cases showed features of mucinous cystadenomas, two ovarian specimens were serous cystadenomas. The histopathological diagnosis of seven ovarian masses were shown in **Table-I**. Macroscopic examination showed all the seven ovarian masses were enlarged measuring from 8cm to 16 cm. Cut surface of the few ovaries masses was circumscribed with multiple nodules which was soft, fleshy and grey yellow to grey brown in colour. Microscopic sections studied from these ovarian masses showed round to polygonal cells arranged in monolayer sheets with round to oval vesicular nucleus and abundant eosinophilic granular cytoplasm which were diagnosed as luteoma of pregnancy. There were no areas of necrosis and mitosis. Reinke crystals were not found in the sections studied; therefore Leydig cell tumor and steroid cell tumor were ruled out.



IV. DISCUSSION:

Luteoma of pregnancy is a rare condition, which can mimic a solid ovarian neoplasms.⁽⁶⁾ It most often occurs in the third and fourth decades and is associated with increased prevalence in the African American population and in the multiparous state. It is multinodular in half the cases and bilateral in a third of the cases.⁽⁷⁾ In 1975 Garcia-Bunuel et al. in their study have reported the largest published a series of luteoma of pregnancy (20 patients).⁽²⁾ In present study we reported three cases out of 270 cesarean sections and all the three cases were seen in above 30 years of age.

Pregnancy luteomas typically undergo spontaneous postpartum regression,⁽⁸⁾ usually within 3 months of delivery. Serum testosterone levels usually return to normal by 2 weeks postpartum. pregnancy luteomas are variable in size, ranging from microscopic to over 20 cm in diameter. Large luteomas rarely can cause torsion, resulting in acute abdominal pain.⁽⁷⁾ Clinically, luteomas are often silent and only discovered incidentally during peripartum

surgery.⁽¹⁾ similarly in the present study all the luteoma cases were silent and found incidentally during cesarean section and the largest luteoma was 14 cm in diameter.

There are some conditions that predispose a woman to form a luteoma during pregnancy. Polycystic ovary syndrome is one such condition.⁽⁴⁾ On gross examination, cut surfaces of luteomas are solid, soft, tan or flesh colored, with hemorrhagic foci.⁽²⁾ Microscopically luteomas are sharply circumscribed nodules composed of polygonal cells arranged in sheets, cords or small clusters or they surround follicle like spaces containing colloid like material. The cytoplasm is abundant eosinophilic and finely granular. The nuclei may be slightly pleomorphic and

hyperchromatic.⁽⁹⁾ The present study all the three cases was found incidentally during cesarean section and similar pathological findings were observed as discussed above. Hence, it was diagnosis as pregnancy luteoma.

In 25% of the cases, luteomas are hormonally active leading to secretion of androgens causing maternal hirsutism and virilization.⁽¹⁰⁾ The differential diagnosis for pregnancy luteomas are extensive and includes granulosa cell tumors, thecomas, Sertoli-Leydig cell tumors, pure Leydig (hilar) cell tumors, unclassified sex cord-stromal tumors, stromal hyperthecosis, stromal luteomas and hyperreactio luteinalis. However, hyperreactio luteinalis has never been reported in association with fetal virilization.⁽¹¹⁾ In our studied cases, Reinke crystals were not found in the sections studied; therefore Leydig cell tumor and steroid cell tumor were ruled out. Malignant ovarian neoplasms are rare in pregnant women. In our two year prospective study no malignancies were found.

V. CONCLUSION:

To conclude a good appreciation of the clinical and imaging features of pregnancy luteoma can obviate the requirement of an unnecessary surgery or interruption of pregnancy. When there is a high clinical suspicion for pregnancy luteoma, conservative management is appropriate since these tumors will usually regress spontaneously. In difficult clinical cases with atypical presentation biopsy of this lesion with intra-operative frozen section may allow preservation of the ovary. The luteoma of pregnancy is a rare condition which probably represents an unusual response to the altered hormonal environment in pregnancy and mimics either a solid or complex cystic ovarian neoplasm. It regresses in the postpartum period.

Table I showing Histopathological Diagnosis of Ovarian Masses.

S.NO	Histopathological Diagnosis	Number of Cases
1	Luteoma of pregnancy	3
2	Mucinous Cystadenoma	2
3	Serous Cystadenoma	2

REFERENCES:

[1]. Sternber g WH, Barclay DL. Luteoma of pregnancy. Am J Obstet Gynecol 1966;95:165-84.

[2]. Garcia- Bunuel R, Berek JS, Woodruff JD. Luteomas of pregnancy. Obstet Gynecol 1975;45:407- 14..

[3]. Janovski NA, Paramanandhan TL. Ovarian tumors. Tumors and tumor-like conditions of the ovaries, fallopian tubes and ligaments of the uterus. Major Probl Obstet Gynecol 1973;4:1- 245.

[4]. Phelan N, Conway GS. Management of ovarian disease in pregnancy. Best Pract Res Clin Endocrinol Metab 2011;25:985- 92.

[5]. Verhoeven AT, Mastboom JL, van Leusden HA, van der Velden WH.



- Virilization in pregnancy coexisting with an (ovarian) mucinous cystadenoma: A case report and review of virilizing ovarian tumors in pregnancy. *Obstet Gynecol Surv* 1973;28:597-622.
- [6]. Sternberg WH. Nonfunctioning ovarian neoplasms. In: Grady HG, editor. *The Ovary*. Baltimore: William & Wilkins; 1963. p. 209.
- [7]. Clement PB. Tumor-like lesions of the ovary associated with pregnancy. *Int J Gynecol Pathol* 1993;12:108-15.
- [8]. Wang HK, Sheu MH, Guo WY, Hong CH, Chang CY. Magnetic resonance imaging of pregnancy luteoma. *J Comput Assist Tomogr* 2003;27:155-7.
- [9]. Robert HY, Philip BC. Miscellaneous primary tumors, secondary tumors, and nonneoplastic lesions of ovary. *Diagnostic Surgical Pathology, Sternberg's*. 5th ed. Lippincott Williams and Wilkins, Philadelphia; 2010. p. 2365-6.
- [10]. Zander J, Mickan H, Holzmann K, Lohe KJ. Androluteoma syndrome of pregnancy. *Am J Obstet Gynecol* 1978;130:170-7.
- [11]. Tinkanen H, Kuoppala T. Virilization during pregnancy caused by ovarian mucinous cystadenocarcinoma. *Acta Obstet Gynecol Scand* 2001;80:476-7.