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Oncology

INCIDENTAL OVARIAN METASTASIS FROM SIGNET RING CELL GASTRIC CARCINOMA DURING PREGNANCY: A CASE REPORT

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ABSTRACT Gastric cancer occurring during pregnancy or within one year postpartum is estimated to affect 0.026% to 0.1% of all pregnancies.1 Signet ring cell carcinoma (SRCC) is a poorly differentiated mucin-producing adenocarcinoma with greater than 50% signet ring cells2. It commonly arises from the gastrointestinal (GI) tract and rarely from extraintestinal organs. According to the World Health Organization (WHO) global cancer database, gastric cancer is the fifth leading cause of cancer and the third cause of cancer death worldwide3. Early diagnosis represents a challenge because of the way of presentation and the histologic aggressiveness of this disease. We are presenting a rare case of signet cell carcinoma (gastric cancer) with pregnancy in a 23 years old female. Which was unthinkable during antenatal period. Intraoperatively that was horrible and catastrophic for fresh obstetrician. Later, the histopathological report revealed unexpected results. Following an endoscopy, the patient was diagnosed with metastatic gastric carcinoma and referred to both a medical oncologist and a surgical oncologist for further treatment.

KEYWORDS : Signet ring cell carcinoma, Ovarian metastasis, Gastric carcinoma, Cancer in Pregnancy, Tumor markers

INTRODUCTION:

Pregnancy associated gastric cancer, defined as a diagnosis of gastric cancer during pregnancy or up to 1 year after delivery, is estimated to complicate 0.026%-0.1% of all pregnancies.[1] Signet ring cell carcinoma (SRCC) is a poorly differentiated mucin-producing adenocarcinoma with greater than 50% signet ring cells[2]. It commonly arises from the gastrointestinal (GI) tract and rarely from extraintestinal organs. According to the World Health Organization (WHO) global cancer database gastric cancer is the fifth leading cause of cancer and the third cause of cancer death worldwide[3]. Known risk factors for gastric cancer include age, smoking, ethnicity and geography, history of gastric ulcer, and immunosuppressive disease. Gastroesophageal reflux disease, obesity and exposure to Helicobacter pylori plays a major role as risk factor for gastric cancer. Pregnant women are at risk for delayed diagnosis of gastric cancer because symptoms may be simulated as gestational features and because of the reluctance to perform invasive diagnostic procedures such as endoscopy.[4] As a result, gastric cancer is often diagnosed in more advanced cancer stages. Early diagnosis represents a challenge because of the presentation form and the histologic aggressiveness of this disease. Diagnosis and therapeutic management of pregnant patients with colorectal cancer are especially difficult because the symptoms are easily attributable to the pregnancy; so that most frequently, patients present at an advanced stage based on a late diagnosis.[5]

SRCC commonly presents with indigestion, dysphagia, nausea, vomiting, abdominal pain, postprandial fullness, anorexia, GI bleeding, pallor, fatigue, and joint pain as the initial presentation because of its common areas of metastases including the peritoneum, bone, and ovaries; it rarely involves the lung or pleural.[6,7,8] SRCC is more associated with genetic mutations in the CDH 1 gene, which is necessary for maintaining E-cadherin integrity. Mutations in this gene lead to loss of cohesiveness of the epithelial lining of the transformed cells, increasing the chances of early metastasis.[8] The assessment of molecular characteristics of gastric cancer helps to select patients who might benefit from a certain therapy. Currently, there are only three therapeutic-relevant, routinely tested biomarkers in gastric cancer (HER 2 expression, PDL1 expression, and deficient mismatch repair).[9] The presence of SRCCs outside of the gastrointestinal tract warrants careful immunohistochemical investigation to rule out metastasis, in addition to appropriate additional workup. This should include endoscopy with systematic random biopsies and narrow band imaging if gastric or colonic lesions are not seen macroscopically.[10] While estrogen receptor (ER) is most often positive in breast SRCCs, it can be negative in up to 20% of cases.[11] CK7 and CK20 expression patterns can often help in distinguishing from a gastric or colonic source.[12]

We are presenting a rare case of signet cell carcinoma (gastric cancer) with pregnancy in a 23 years old female. Which was unthinkable during antenatal period. Intraoperatively that was horrible and catastrophic for fresh obstetrician. Later, the histopathological report revealed unexpected findings. The patient was advised to undergo an upper gastrointestinal endoscopy with biopsy, which confirmed the final diagnosis of metastatic gastric carcinoma. The patient was then referred to medical oncology for further chemotherapy.

CASE REPORT:

23 years lady para 1 live 1 with chief complaints of pain abdomen on and off in the last 7 days, vomiting 1-2 episodes/day for 3 days was referred from private hospital. She had emergency caesarean section in view of uterine rupture with intrauterine demise at 7 months of gestation in private hospital. Intra operative finding was Gross yellowish free fluid in peritoneal cavity, Large left ovarian cyst along with retroperitoneal hematoma and uterus found intact, Drain was kept between uterus and retroperitoneum. She had no any other significant history. When she reported in emergency and she was vitally stable at time of presentation. On per abdomen examination: Abdomen was distended, tenderness present over pelvic region, soft to firm mass, about 28-30 weeks, non-mobile.

Tumor Markers: CA 125 – 133.60; CA 19.9- 52.1; CEA 0.98; Beta HCG-59.20; AFP-24.90

USG Abdomen:
Uterus normal in morphology, endometrium thickness was 2 millimetres. There is large intraperitoneal collection with thick non tappable contents seen extending from the pelvis to the epigastric region superiorly, laterally it is seen extending to the lumbar region with few well-defined rounds to oval anechoic structures arranged peripherally suspicious of large intraperitoneal collection or Large left ovarian lesion

CECT:
There is a large abdominopelvic cystic lesion seen originating from the pelvis measuring 22 x 9 x 22cm and is extending superiorly till L2 vertebral level which is displacing bowel superiorly, ureter posteriorly, no calcification/fatty attenuation seen within the mass, few soft tissue components seen anteriorly along the mass, Mass is seen draining along the right gonadal vein. Right ovary not seen separately from the mass. Uterus bulky postpartum. bilateral hydroureteronephrosis, normal excretion of contrast seen via kidneys. No significant retroperitoneal lymph nodes. There is bilateral pleural effusion with underlying passive atelectasis. Rest solid organs normal, with bowel loops collapsed.

INTRAOPERATIVE FINDING:
Left ovarian mass lesion of size 6 x7 x 7cm with irregular surface firm

to hard in consistency, on cut section cystic and hemorrhagic area seen. Right ovarian mass lesion of size 10 x 10 x 5 cm attached with intraperitoneal hematoma (solid; irregular surface); 1 x 1cm ovarian tissue preserved.

Large hematoma -25 x 25 x 20 cm extending till epigastrium, originating from right sided ovarian mass (drained) intracapsular along with ovarian mass.
Growth felt in pyloric region of stomach; firm in consistency (not obscuring the lumen).

Few flimsy adhesions between Bowel and mass, Rest bowel loops and solid organs grossly normal.

Histopathology Report:
Left ovarian mass measuring 7.5x6.5x2cm and right ovarian mass with surrounding organised clot altogether measuring 22x20x10cm, on cut section a grey white area identified measuring 7x4x4cm. Section from both right and left ovarian mass show similar morphology. Tumor cells are predominantly singly scattered and few arranged in cords and nests in a background of abundant mucin. Tumor cells are round to oval with eccentric hyperchromatic nucleus and moderate amount of cytoplasm suggestive of signet ring cells.

On IHC, tumor cells are positive for CK20 and CDX2 and focally for CK7, Tumor cells are negative for Her2neu, final conclusion of histopathology report Metastatic Signet Ring Cell Carcinoma (primary from upper digestive system suggestive of gastric or pancreas) IHC: CDK20+, CDX2 +, focally CK7 +, NEGATIVE for Her2neu

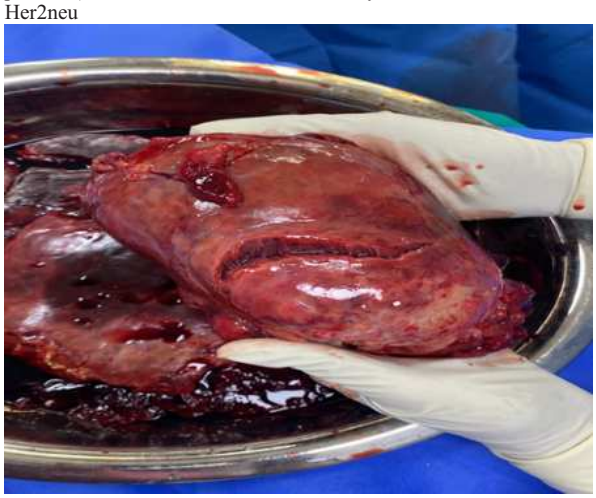

Fig 1: dorsal surface right ovarian mass and hematoma

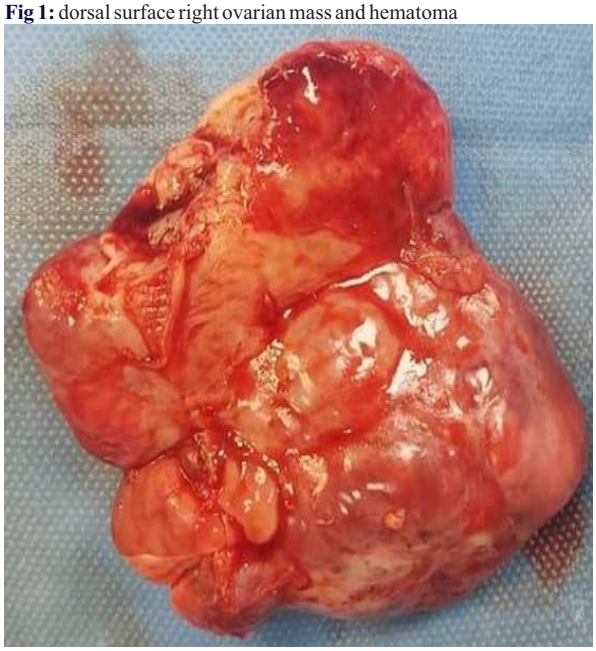

Fig 2: ventral surface of left ovarian mass

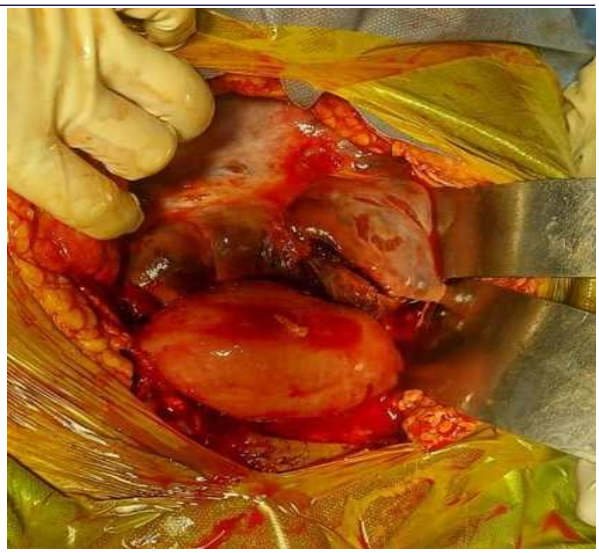

Fig 3: Intraoperative Image Of Uterus, Large Hematoma And Ovarian Mass

DISCUSSION:
Gastric cancer shows very vague symptoms and those symptoms simulate with normal physiological changes of pregnancy that's why oftenly we delay in diagnosis of such a rare entity**.** Davis and Chen[13] from Cedars-Sinai Medical Centre reported a case of gastric carcinoma presenting as an exacerbation of ulcers during pregnancy. They stated: Gastric cancer is unusual during pregnancy. Also, because of the physiologic changes that occur with pregnancy, it is rare to see a worsening of peptic ulcers during pregnancy.

Bruggmann et al[14] reported recently a case of gastric carcinoma in pregnancy. They declare: fetal metastasis is a rare entity, therefore caesarean section and chemotherapy should not be performed until fetal maturity. If vomiting and nausea are prolonged after the sixteenth week of pregnancy a malignant disease of the stomach should be excluded.

Jasmi et a1[15] reported a 27-year-old woman at 16 week's gestation who presented with a perforated malignant gastric ulcer and peritoneal carcinomatosis.

V.M.G. Marbun et al[16] had reported a case of 28 years old nulliparous at 21 weeks of gestation with complaints of continuous epigastric pain and palpable mass, intractable nausea and vomiting, and history of melena since 12-week gestational age. Due to intractable symptoms, she was performed an MRI which showed a gastric mass.

CONCLUSION:
Early recognition and diagnosis of gastric cancer during pregnancy is the only possibility for a positive outcome. Nausea and vomiting are common sufferings of pregnant woman. No gynaecologist would consider carcinoma of the stomach as a probable cause of her symptoms because of the extremely rare probability of this disease during pregnancy. Consequently, a late diagnosis in pregnancy can result in spreading throughout the whole abdomen. In this advanced stage is only possible the palliative care followed by short survival. If vomiting and nausea are prolonged after the 16th week of pregnancy a malignant disease of the stomach should be considered and has to be excluded.

Only in case of short delay between symptoms and diagnosis, the gastric cancer may be totally resected and followed by a better overall survival. Early recognition and diagnosis of gastric cancer during pregnancy is the only possibility for a positive outcome. We suggest that endoscopy should always be considered if pregnant woman in second or third trimester has continuing gastrointestinal symptoms and unexplained anaemia.

No Conflict Of Interest.

REFERENCES:
1. Sakamoto K, Kanda T, Ohashi M, et al. Management of patients with pregnancy associated gastric cancer in Japan: a mini-review. Int J Clin Oncol. 2009;14(5):392-396.

2. Arifi S, Elmesbahi O, Amarti Riffi A: Primary signet ring cell carcinoma of the colon and rectum. Bull Cancer. 2015, 102:880-8. 10.1016/j.bulcan.2015.07.005
3. The Global Cancer Observatory: World. (2021). Accessed: November 29, 2022: https://gco.iarc.fr/today/data/factsheets/populations/900-world-fact-sheets.pdf.
4. Lee HJ, Lee IK, Kim JW, Lee KU, Choe KJ, Yang HK. Clinical characteristics of gastric cancer associated with pregnancy. Dig Surg. 2009;26(1):31-36.
5. Capell MS. Colon cancer during pregnancy. Review. The gastroenterologist's perspective. Gastroenterol Clin North Am. 1998; 27:225–56
6. Aqsa A, Droubi S, Al-Moussawi H, Lan G, Andrawes S: Gastric signet ring cell adenocarcinoma presenting as intermittent volvulus of small bowel: a case presentation and review of the literature. Cureus.2022,14: e23228.10.7759/cureus.23228
7. Zaafouri H, Jouini R, Khedhiri N, et al.: Comparison between signet-ring cell carcinoma and non-signet-ring cell carcinoma of the stomach: clinicopathological parameters, epidemiological data, outcome, and prognosis-a cohort study of 123 patients from a non-endemic country. World J Surg Oncol.2022,20:238.10.1186/s12957-022-02699-8
8. Pernot S, Voron T, Perkins G, Lagorce-Pages C, Berger A, Taieb J: Signet-ring cell carcinoma of the stomach: Impact on prognosis and specific therapeutic challenge. World J Gastroenterol. 2015, 21:11428-38.10.3748/wjg. v21.i40.11428
9. Choi S, Park S, Kim H, Kang SY, Ahn S, Kim KM: Gastric cancer: mechanisms, biomarkers, and therapeutic approaches. Biomedicines. 2022, 10:10.3390/ biomedicines10030543
10. Phalanusitthepha, C.; Grimes, K.L.; Ikeda, H.; Sato, H.; Sato, C.; Hokierti, C.; Inoue, H. Endoscopic features of early-stage signet-ring-cell carcinoma of the stomach. World J. Gastrointest. Endosc. 2015, 7, 741–746.
11. Tot, T. The role of cytokeratins 20 and 7 and estrogen receptor analysis in separation of metastatic lobular carcinoma of the breast and metastatic signet ring cell carcinoma of the gastrointestinal tract. Apmis 2000,108, 467–472.
12. Li, X.; Feng, Y.-F.; Wei, W.-D.; Liu, P.; Xie, Z.-M.; Wang, J.; Xie, X.-M. Signet-ring cell carcinoma of the breast:A case report. World J. Surg. Oncol. 2013, 11, 183.
13. Davis JL, Chen MD. Gastric carcinoma presenting as an exacerbation of ulcers during pregnancy. A case report. J Reprod Med 1991;36(6):450–2.
14. Bruggmann D, Bohlmann MK, Bohle RM, Tinneberg HR. Gastric cancer in pregnancy – a case report. Zentralbl Gynakol 2006;128(4):224–8.
15. Jasmi AY, Normala B, al-Amin MD. Perforated malignant gastric ulcer in a pregnant young adult: a case report. Med J Malaysia 2000;55(1):135–7.
16. V.M.G. Marbun, A.S. Putranto / International Journal of Surgery Case Reports 75 (2020) 338–344