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Synchronous ovarian metastasis from colorectal carcinoma-Krukenberg tumour: Case report

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Abstract

Krukenberg tumours are rare metastatic tumours of ovary mimicking a primary ovarian tumour. Here we have described a case where a young woman of reproductive age group presented with vague GI symptoms pertaining to an ovarian malignancy. On thorough investigation, she was diagnosed as a rare case of carcinoma rectum. The aim of this article was to give an over view of krukenberg tumour and open a new window of discussion in such overlapping cases as the management and the prognosis are different in both the scenarios.

Keywords: Krukenberg tumours, colorectal carcinoma, ovarian tumour

Introduction

Krukenberg tumour is rare and accounts for 1-2% of all ovarian neoplasms^[1]. Krukenberg tumor are metastatic adenocarcinoma of ovaries arising primarily from gastric carcinoma. Estimated incidence of these tumours is approximately 0.16 per lakh/year^[2].

Presence of Krukenberg Tumour at the time of imaging poses extremely poor prognosis for the patients with survival rate ranging from 12-23.4%^[3].

Majority of Krukenberg tumours originate from gastric malignancy, however primary from bowel (11%), breasts (4%), biliary system (3%), caecal (3%), pancreas, urinary bladder also account for it^[4]. An ovarian mass may be the initial manifestation of a primary tumour located elsewhere^[5].

In the present case a young woman of reproductive age group presented with bilateral ovarian mass with ascites and features suggested of primary ovarian malignancy and a positive family history of the same in second degree relative. On thorough investigation, she was diagnosed with a primary colorectal carcinoma and metastatic krukenberg tumour in the ovary.

Case report

A 27 year old P1L1 presented to the Gynae OPD of Sri Guru Ram Das Institute of Medical Sciences and Research Amritsar with complaints of diffused abdominal pain and progressive abdominal distention since past 15 days. She had no bladder or bowel dysfunction. On per abdominal examination, she had an abdomino pelvic mass corresponding to 18 weeks size of the pregnant uterus. Ascites with fluid thrill test was positive. The patient was admitted in Gynae ward. Urine pregnancy test was negative and the patient was stabilized with intravenous analgesics. MRI scan was advised which revealed bilateral adnexal solid masses measuring 9.9x7.5x10.6 cm on right side and 9x6.1x7.9 cm on left side along with Ascites. No other abdomino pelvic pathology was identified.

CA 125 (At the time of admission) was 282 mIU/ml. CEA-6.2 ng/ml. Fine Needle Aspiration Cytology (FNAC) was suggestive of malignant epithelial tumour with mucin production. After consultation with oncologist, patient was planned for neo adjuvant chemotherapy with Paclitaxal and Carboplatin.

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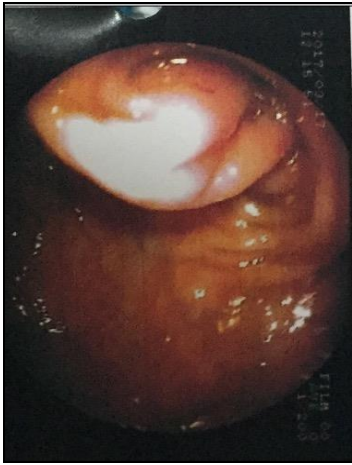


Fig 1: Rectal stricture on sigmoidoscopy

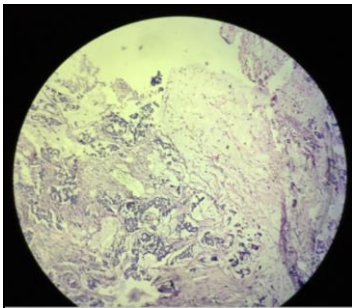


Fig 2: Histopathology of rectal stricture revealing adenocarcinoma

On follow up, patient started complaining of malena after 4 cycles of chemotherapy. There were no signs of regression of mass with chemotherapy. A sigmoidoscopy was planned which revealed a rectal stricture (Figure 1). The biopsy was taken from the same which revealed mucin secreting adeno carcinoma on histopathology (Figure 2).



Fig 3: Ovarian mass removed during debulking surgery



Fig 4: Cut section of bilateral ovarian mass

A team of onco surgeon and gynecologists performed debulking surgery with removal of bilateral ovarian masses (Figure 3, Figure 4), omentectomy with bilateral pelvic lymphadenectomy (Figure 5), peritoneal fluid sampling and resection of upper rectal mass. Peritoneal washing cytology was negative for neoplastic cells. Histopathological examination and immunohistochemistry of the mass suggested presence of typical signet ring cells (Figure 6) making the diagnosis of Krukenberg Tumour with primary rectal carcinoma.



Fig 5: Specimen of omentum removed during debulking

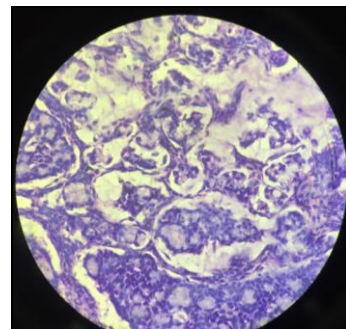


Fig 6: Histopathology of ovarian mass showing signet ring cells

Discussion

Krukenberg Tumour is considered as a metastatic carcinoma to the ovary, first described by Friedrich Krukenberg in 1896. They indicate a metastatic carcinoma deriving from a primary malignancy, mainly the gastrointestinal tract. An ovarian mass may be the initial manifestation of a primary tumour located elsewhere, the primary tumour being detected only following the diagnosis of a metastatic tumour there are certain cases of uncertain origin as well. The reason might be that:

- a) Primary carcinoma may be too small to discover recovering extensive investigation to detect them [6].
- b) Some primary carcinoma may remain silent for quite a long time [7].

As far as age is concerned, Krukenberg Tumour is more likely to occur in premenopausal woman then post-menopausal women [8, 9].

Although the mechanism of Krukenberg Tumour formation remains elusive, the current understanding suggest three possible pathways of metastasis-Lymphatic, Hematogenous and transcoelomic metastasis [10].

Retro grade lymphatic spread is considered as the most likely route which is supported by several line of evidence.

- a) Large amount of lymphatic tissue and lymph vessel in ovarian hilum, cortex, mesovarium where carcinomatous emboli are frequently observed in Krukenberg tumour [7].
- b) Gastrointestinal carcinoma cells could invade retropelvic lymph nodes, resulting in obstruction of lymph vessels and

counter current of lymph fluid to ovaries [11].

Krukenberg tumour is based on the presence of stromal involvement, mucin producing neoplastic signet ring cells and ovarian stromal sarcomatoid proliferation. Immuno histochemistry can be very valuable in distinguishing primary ovarian tumours from metastatic tumours. Immuno-histochemical staining is performed on formalin- fixed, paraffin-embedded tissue sections using the antibodies specific for the antigens, Cytokeratin-7 (CK7) and Cytokeratin-20 (CK20) [12]. A CK7+/CK20- favours a primary ovarian tumour while on the contrary, a CK7-/CK20+ or CK7+/CK20+ favours a metastatic gastrointestinal carcinoma [6].

Pitfalls in diagnosis of the above case were:

1. Lack of clinical suspicion
2. Absence of gastrointestinal presenting complaints
3. Non specificity of CA125
4. Inconclusive FNAC report
5. Initial MRI scan negative for Gastrointestinal pathology

Conclusion

Distinction of metastatic ovarian carcinoma from primary ovarian malignancy is crucial for subsequent management. A typical Krukenberg Tumour shows histopathological pattern similar to that of primary malignancy whereas atypical Krukenberg Tumour has histopathological picture different to that of primary malignancy. The treatment of the same also varies as the metastatic has poor response to chemotherapy and palliative radiotherapy is the preferred treatment hence in premenopausal woman with ovarian tumor, close investigation of gastro intestinal tract and regional lymph nodes should be considered to detect primary lesion and the metastatic pathway.

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