

**A CURIOUS DISSERTATE OF KRUKENBERG TUMOR: A CASE REPORT****Dr. Mahendra Singh, Dr. Lubna Khan and Dr. Md. Arshad Alam\***

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Article Received on 10/09/2017

Article Revised on 01/10/2017

Article Accepted on 22/10/2017

**ABSTRACT**

Krukenberg tumor is usually, but not always a bilateral involvement of the ovaries from metastatic deposit from adenocarcinoma of the stomach and rarely from other gastrointestinal (GI) and non GI organs. The route of metastasis of this rare condition is still not proven. It is still uncertain whether surgical resection of ovarian metastases and/or primary tumor could improve the outcome. We report even a rare presentation of this rare disease entity.

**KEYWORDS:** Krukenberg Tumor; Metastatic Gastric Adenocarcinoma; Signet Ring Cell Gastric Carcinoma.**INTRODUCTION**

Krukenberg discussed five cases of a rare entity of ovarian tumor in the year 1896. It is an uncommon metastatic tumor of the ovary with transcoelomic spread and accounts for 1-2 % of all ovarian tumours. They were having malignant cells as a new type of primary ovarian sarcomas, which renamed "fibrosarcoma over mucocellulare (carcinomatodes)".<sup>[1,2]</sup> Initially, he proposed it was a primary ovarian tumor, but later it was proved to be secondary to gastrointestinal (GI) tract malignancy particularly stomach.<sup>[3]</sup> Nearly 80% cases are bilateral. Other primary GI organs responsible are colon, biliary system, jejunum, and pancreas. Non GI organs like breast, uterine endometrium, thyroid, kidney and lungs are also found to be of primary malignancy rarely.<sup>[4]</sup> Histologically these are usually poorly differentiated intestinal type adenocarcinoma with or without signet ring cells, sometimes producing mucins.<sup>[5]</sup> It is considered as a metastatic disease with very poor prognosis. Till date optimal treatment has not been established, and it is still uncertain whether surgical resection of ovarian metastases and/or the primary could help. We report a rare presentation of gastric carcinoma with ovarian metastasis.

**THE CASE REPORT**

A 43-year-old married woman presented with pain in abdomen, distension and loss of appetite since 5 months. The patient complained of low back pain and menstrual irregularity since 3 months. She had no family history of any malignancy. Abdominal - pelvic ultrasound examination showed bilateral solid ovarian masses with irregular echogenicity suggestive of bilateral ovarian tumor. All laboratory tests were within normal limits except for raised serum level of CA-125. The patient

underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy.

On gross examination, Specimen consists of one irregular tissue piece measuring with attached Fallopian tube and ligation clamp. Both ovaries were asymmetrically enlarged and right ovary measured 7.5x5x3.5 cm and left ovary measured 7.7x4.1x3.5 cms respectively. (Figure 1) Externally, both ovaries showed irregular, nodular with bosselated appearance. The globular tissue piece is grayish white and hard in consistency, on cut section tissue appears lobulated and shiny, greyish-white with cystic areas. (Figure 2).

Histologically, serial sections showed signet ring tumour cells within a cellular ovarian stroma. The tumor cells were arranged singly or in nests with eccentric nuclei and large, pale and vacuolated cytoplasm filled with mucin. (Figure 3) The tumor cells were arranged singly or in nests with eccentric nuclei and large, pale and vacuolated cytoplasm filled with Mucin. (H&E X400). Periodic acid Schiff (PAS) stain revealed the presence of mucin in the cytoplasm of signet ring cells.

On the basis of histological findings, the diagnosis of bilateral metastatic Krukenberg tumor was made. Detailed radiographic and endoscopic examination of the digestive system of the patient was advised to find out primary site. Endoscopic finding revealed small lesion approximately 1-2cm in diameter near the gastric antrum. Endoscopic guided gastric biopsy was taken post operatively and revealed a signet ring cell carcinoma, similar to that in the ovaries, confirming the gastric origin of the Krukenberg tumor. A colonoscopy showed no abnormal findings. A total gastrectomy was performed and reported as signet ring cell carcinoma of

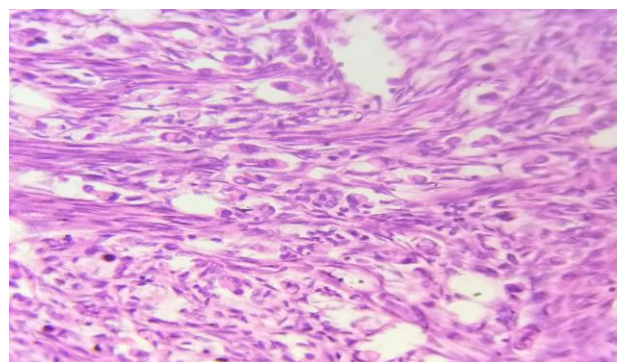
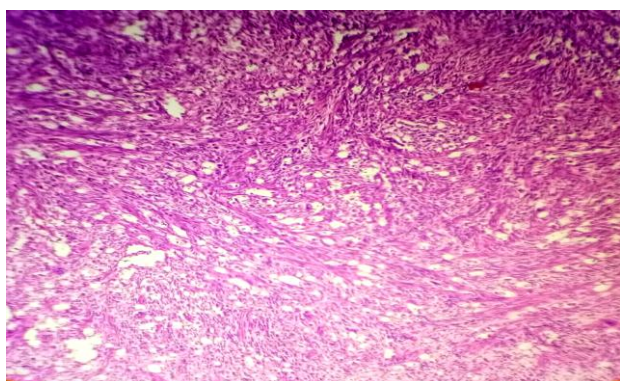
stomach. The patient was referred to the higher center for further treatment.



**Figure. 1:** Grossly, both ovaries were asymmetrical enlarged with irregular, nodular with bosselated appearance.



**Figure. 2:** The cut section of both ovaries was lobulated, greyish white in colour with cystic areas.



**Figure. 3:** Light microscopy showed signet ring tumour cells within a cellular ovarian stroma. (10X and 40X).

## DISCUSSION

Krukenberg tumor is a bilateral ovarian neoplasm nearly always of metastatic origin characterized grossly by moderate solid multinodular enlargement of the ovaries and microscopically by a diffuse infiltration by signet ring cells containing abundant mucin.<sup>[5]</sup> German gynaecologist Frederick Krukenberg reported a new type of primary malignant ovarian tumor. Later R.H Major diagnosed the true metastatic nature of this tumor. Krukenberg tumor is a rare tumor, accounting for 1-2% of all ovarian tumors.<sup>[6]</sup> The primary lesion of Krukenberg tumor is frequently from stomach but may also be from colon, biliary tract, appendix, breast and gall bladder. The primary tumor cannot be found in at least 10% of cases.<sup>[7]</sup> In 80% of cases Krukenberg tumor occurs bilaterally and as was in our case.<sup>[8]</sup> Krukenberg tumors are more common in premenopausal women than in postmenopausal women and the average age is to 40-50 years.<sup>[9]</sup> Clinically, patients present with abdominal or pelvic pain and menstrual irregularity. Some patients may exhibit nonspecific gastrointestinal symptoms or remain asymptomatic. In many cases, the primary tumor is very small and can escape detection. In only 20% to 30% of the cases a history of a prior carcinoma of the stomach or any other organ can be obtained.<sup>[7]</sup> The diagnosis of Krukenberg tumor largely depends on the characteristic histological features such as malignant signet ring cells arranged singly, in cords or in nests admixed with abundant cellular stroma.<sup>[10]</sup> Krukenberg tumor is an uncommon metastatic tumor of the ovary and may cause diagnostic confusion with primary ovarian tumors like Sertoli-Leydig cell tumor, primary mucinous carcinoma of the ovary, clear cell carcinoma and sclerosing stromal tumor. But the characteristic gross and microscopic features rule out these lesions.

Distinction from the latter is of great importance as misclassification of Krukenberg tumor as a primary ovarian tumor may lead to suboptimal treatment of the patient. CA125 levels can be used for screening for early detection of ovarian metastasis and monitoring the course of disease. It also can help to predict the prognosis. The prognosis of Krukenberg tumor is poor and the optimal treatment of Krukenberg tumor is unclear, but if metastasis are limited to the ovaries, surgery may improve survival time. Chemotherapy or radiotherapy has no significant effect on the prognosis of patients.<sup>[3]</sup>

## CONCLUSION

Krukenberg tumor is a rare clinical disorder. It is essential to rule out other ovarian malignancy to avoid the misdiagnosis and management of the Krukenberg tumor. Serum CA-125 level has prognostic value.

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