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Case Report

KRUKENBERG TUMOR OF THE OVARY- A CASE REPORT

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ABSTRACT
Krukenberg tumor is an interesting and rare clinical entity. It is an uncommon metastatic tumour of the ovary with transcoelomic spread and accounts for 1-2 % of all ovarian tumours. Stomach is the most common primary site, but other organs can serve as a primary site. Accurate diagnosis of Krukenberg tumor requires thorough endoscopic and histopathological examination to exclude primary ovarian tumors.
Herein, we report a rare case of a 36 year old woman who presented with bilateral ovarian masses. Total hysterectomy with bilateral salpingo-oophorectomy was performed. Histopathological examination confirmed the diagnosis of Krukenberg tumor.

Keywords: *Krukenberg, Ovary, Stomach*

INTRODUCTION
Krukenberg tumor is a metastatic signet ring cell adenocarcinoma of the ovary (Al-Agha, 2006). Metastasis usually arises from the upper parts of the gastrointestinal tract [stomach (70%), pancreas, and biliary tract], breast and sometimes other organs like kidney, lungs, thyroid and endometrium (Hale, 1968). It is a rare tumor and accounts for 1-2% of all ovarian tumors (Mates, 2008). 80% cases of Krukenberg tumors are bilateral and consistent with its metastatic nature (McGill, 1998). It may mimic other metastatic or primary ovarian tumor and adds difficulty in diagnosis (Mates, 2008)
In this report, we describe a case of a 36-year-old woman with bilateral Krukenberg tumor.

CASES
A 36-year-old married woman presented with pain in abdomen, distension and loss of appetite since 6 months. The patient complained of low back pain and menstrual irregularity since 2 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 tumour. All laboratory tests were within normal limits except for raised serum level of CA-125. Patient underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy.

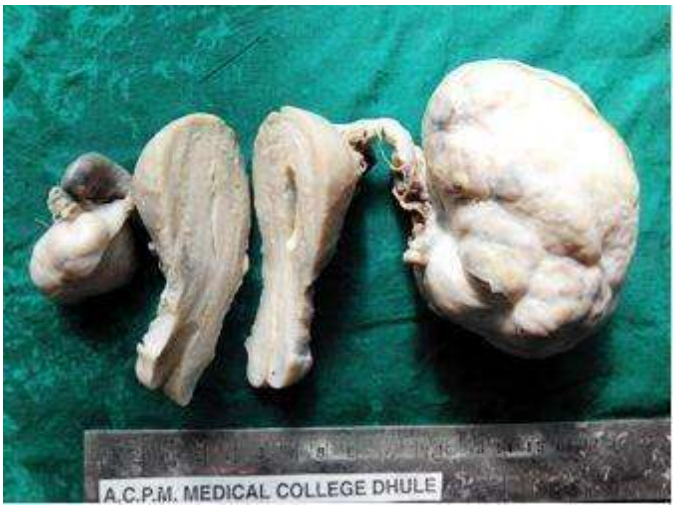

Figure 1: Grossly, both ovaries were asymmetrically enlarged with irregular, nodular with bosselated appearance

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On gross examination, both ovaries were asymmetrically enlarged and right ovary measured 4x3x2.2cms and left ovary measured 12x8x4.5cms respectively. Externally, both ovaries showed irregular, nodular with bosselated appearance. (Figure 1)

The cut section was lobulated, greyish white in colour with cystic areas. (Figure 2)

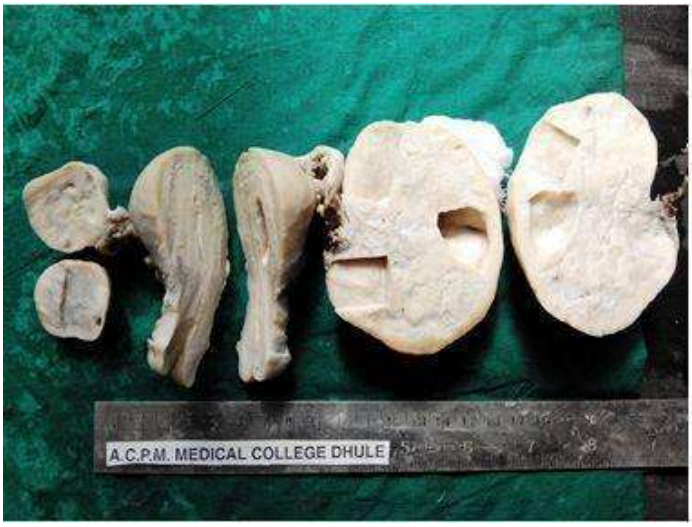

Figure 2: The cut section of both ovaries was lobulated, greyish white in colour with cystic areas

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)

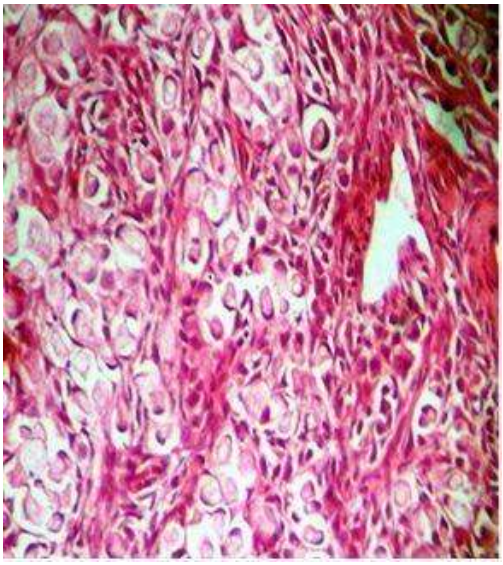

Figure 3: Light microscopy showed signet ring tumour cells within a cellular ovarian stroma

The tumor cells were arranged singly or in nests with eccentric nuclei and large, pale and vacuolated cytoplasm filled with Mucin. (H&E X400). Periodic acid Schiff (PAS) stain revealed the presence of mucin in the cytoplasm of signet ring cells. (Figure 4)

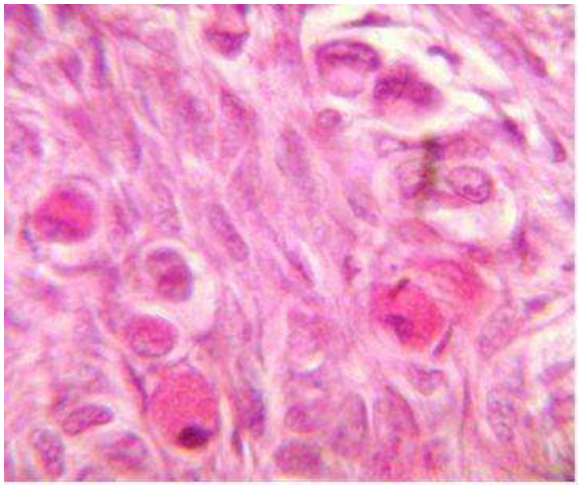

Figure 4: Periodic acid Schiff (PAS) stain revealed the presence of mucin in the cytoplasm of signet ring cells. (H&E X400)

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. Colonoscopy showed no abnormal findings. A total gastrectomy was performed and reported as signet ring cell carcinoma of stomach. The patient was referred to higher centre for further treatment.

DISCUSSION

Krukenberg tumor is an ovarian neoplasm, usually bilateral and 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 (Rosai, 2004). In 1896, it was first reported by a German gynaecologist Frederick as a new type of primary malignant ovarian tumor, but, six years later R.H Major revealed the true metastatic nature of the tumor. Krukenberg tumor is a rare tumor accounting for 1-2% of all ovarian tumors (Al-Agha, 2006).

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 (Holtz, 1982). In 80% of cases Krukenberg tumor occurs bilaterally and as was in our case (McGill, 1998).

Krukenberg tumors are more common in premenopausal women than in postmenopausal women and average age is to 40-50 years (Yakushiji, 1987). 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 (Holtz, 1982).

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 (Kiyokawa, 2006).

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 is limited to the ovaries, surgery may improve survival time. Chemotherapy or radiotherapy has no significant effect on prognosis of patients (Al-Agha, 2006).

Conclusion

Krukenberg tumor is a rare clinical entity. It is essential to rule out other ovarian malignancy to avoid the misdiagnosis and management of the Krukenberg tumor. Serum CA-125 level can help to predict the prognosis.

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