# Krukenberg Tumour Arising from Gall Bladder- A Rare Presentation

**Abhishek Jaiswal[1], Ojasvi Shanker[2], Varsha M Khalkho[3]**

**ABSTRACT**

**Introduction:** Krukenberg tumours are rare, usually bilateral, metastatic ovarian tumours presenting in perimenopausal age women. It usually arises from the GIT (stomach/colon), however it may arise from other rare sites like breast, appendix, biliary tract and gall bladder. Imaging plays a definite role in the diagnosis and management of such cases.

**Case report:** In this paper, we report two interesting cases of bilateral ovarian masses where the primary site of malignancy was GB. The first case showed synchronous metastases to the ovary while the second one showed metachronous metastases to the ovary.

**Conclusion:** This report highlights the importance of keeping in mind the rare sites of primary tumour while dealing with bilateral ovarian masses.

**Keywords:** GIT, GB, Krukenberg Tumour, CBD, IHBR

## INTRODUCTION

Krukenberg tumors, named after Friedrich Ernst Krukenberg, were first described in 1896. It is a rare tumour accounting for 1-2% of all ovarian tumors.[1] It is a metastatic signet ring cell adenocarcinoma of the ovary primarily arising from the stomach in around 70% cases. The next most common sites of primary tumour are colon(20%) followed by breast and appendix.[2] The rare sites of the primary tumour are gallbladder, biliary tract, pancreas, small intestine, ampulla of Vater, cervix and urinary bladder.[2] In 80% cases, the tumours are bilateral.[3] The prognosis is usually very poor.

## CASE REPORT

**Case 1:** A 50 yr old female patient presented with pain in abdomen with distension and yellowish discolouration of urine for 15 days. There was no significant past or family history. An abdominal examination showed no palpable mass. Ultrasound examination showed the presence of multiple calculi within the lumen of gall bladder with heteroechoic mass within it. There was extrinsic compression of the CHD by the GB mass resulting in bilobar intrahepatic biliary radicle dilatation. Multiple round target like lesions of various sizes were noted in both the lobes of the liver. Mild ascites and bilateral heteroechoic adnexal masses were also noted. CECT abdomen showed multiple hyperdense calculi and heterogeneously enhancing mass within the lumen of GB (fig 1 a). Mild ascites with omental caking was noted (fig 1 b). Round to oval mass lesions with peripheral lobulated outline and solid as well as cystic contents within it were noted in bilateral adnexae (fig 1 c). Both the lobes of the liver showed multiple rounded hypoenhancing lesions (fig 1 d). No enlarged lymph nodes were found in the pelvis or in the retroperitoneum. The haematological marker of ovarian malignancy, CA-125 was normal being 15 U/ml (normal value <30.2 U/ml) whereas CA 19-9 was markedly elevated to 1310 U/ml (normal value< 35.00 U/ml).

**Case 2:** A 67 year old female patient presented with

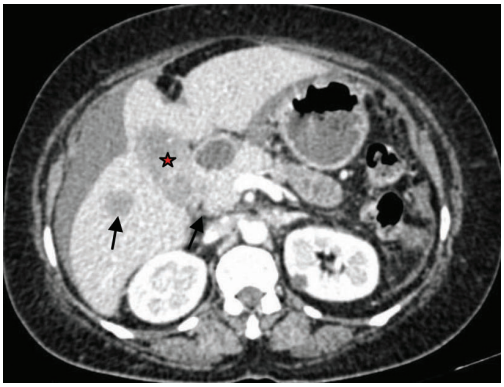

**Figure-1(a):** Axial CECT abdomen shows presence of heterogeneously enhancing mass lesion in the GB (*) with indistinct fat plane with the adjacent hepatic parenchyma. Well circumscribed rounded hypodense lesion(arrow) is noted in the segment VI of the liver, highly suggestive of metastases. Ascites noted in the perihepatic location.

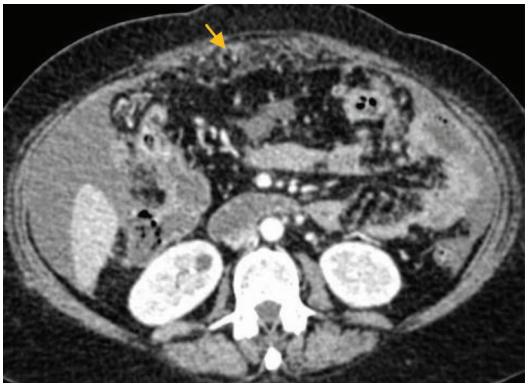

**Figure-1(b):** Lower abdomen axial sections at the level of kidneys show ascites and omental caking(arrow).

[1]Senior Consultant and HOD, Department of Radiology, Meherbai Tata Memorial Hospital, Jamshedpur, [2]Assistant Professor, Department of OBG, Manipal Tata Medical College, Jamshedpur, [3]Consultant Radiologist, Department of Radiology, Meherbai Tata Memorial Hospital, Jamshedpur, India

**Corresponding author:** Dr. Abhishek Jaiswal, Senior Consultant and HOD, Department of Radiology, Meherbai Tata Memorial Hospital, Jamshedpur, India

**How to cite this article:** Abhishek Jaiswal, Ojasvi Shanker, Varsha M Khalkho. Krukenberg tumour arising from gall bladder- a rare presentation. International Journal of Contemporary Medical Research 2020;7(7):G5-G7.

**DOI:** http://dx.doi.org/10.21276/ijcmr.2020.7.7.20

complain of abdominal distension for 10 days. She had a history of CA GB and was operated for the same 6 months back. Ultrasound followed by CECT scan of the abdomen showed massive exudative ascites with omental caking. CBD and IHBR was prominent with air in the biliary tree, suggestive of pneumobilia (fig 2 a). Both the ovaries were bulky showing solid cystic mass (fig 2 b). CA 125 was normal at 10 U/ml.

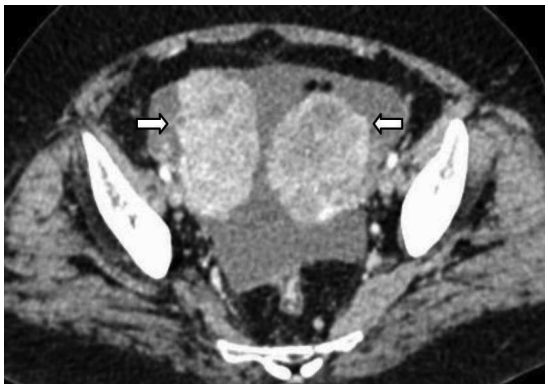

**Figure-1(c):** Axial CECT at the level of pelvis shows well defined heterogeneously enhancing mass lesion in each adnexa(solid arrows). The solid portion of the mass shows enhancement while the hypodense non enhancing portion represents necrosis/cystic component.

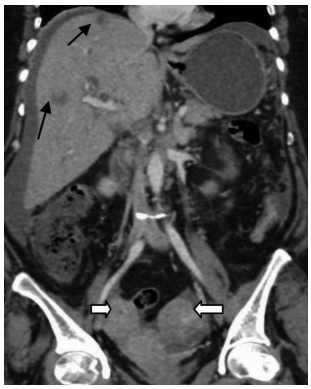

**Figure-1(d):** Coronal section of the abdomen and pelvis shows two rounded lesions in the liver (black arrows),moderate ascites and bilateral solid enhancing lesions in the adnexae (bold white arrows).

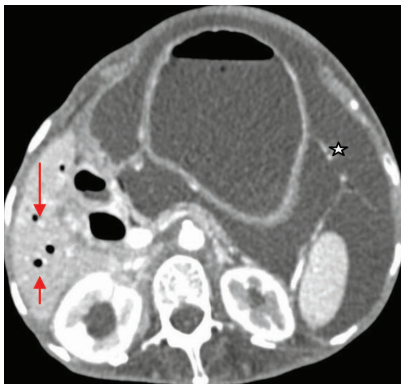

**Figure-2(a):** Axial CECT abdomen shows post op status of GB. Mildly hyperdense ascites(*) noted with septae within it suggestive of exudative ascites. IHBR is dilated and shows presence of air within it suggestive of pneumobilia(arrows).Moderate hydronephrosis is noted in the right kidney.

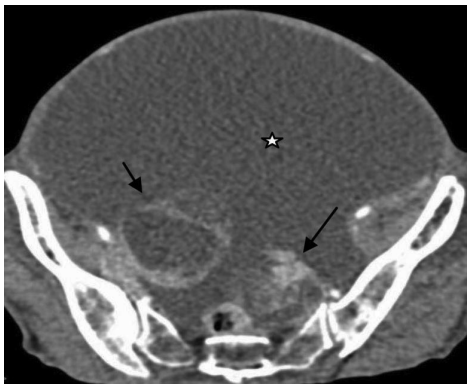

**Figure-2(b):** Axial CECT at the level of pelvis shows well defined heterogeneously enhancing solid/cystic mass lesion in bilateral adnexa (black arrows). Gross ascites(*) seen.

## DISCUSSION

Krukenberg tumours are ovarian neoplasms usually bilateral and metastatic in origin. In 1902, Schlagenhaufer stated that the most common primary site of the tumour which metastasizes to the ovary was gastrointestinal tract.[4] The other sources of primary tumour can be biliary tract, appendix, breast or gall bladder. In both these cases, the primary source of malignancy was GB which is rare primary site causing metastases to the ovaries.

Women typically diagnosed with Krukenberg tumors are in the perimenopausal age group typically in their 5th decade.[5] They usually present with abdominal or pelvic pain or nonspecific gastrointestinal symptoms. 20%- 30% cases have a history of prior carcinoma of the stomach or other organ.[6]

Bilateral involvement is a typical feature occurring in up to 80% of ovarian metastases.[3] The tumor spreads to the ovaries by three mechanisms: (1) the lymphatic spread, (2) the hematogenous, or (3) the transcoelomic spread.

The WHO diagnostic criteria for the diagnosis of Krukenberg tumour requires the presence of stromal involvement, mucin-producing neoplastic Signet Ring Cells (SRCC) and ovarian stromal sarcomatoid proliferation.[7]

Metastatic tumours to the ovaries consists of both solid and cystic component mimicking primary ovarian mucinous carcinoma(POMC). Features that favour a metastatic mucinous ovarian carcinoma are i) bilaterality ii) a multinodular surface iii) an irregular infiltrative growth iv) angiolymphatic invasion and v) an extraovarian spread.[8] In the present cases all these features were present. But POMCs can also exibit these features.

CT is the imaging modality of choice which shows thick irregular walls of the ovaries, solid and cystic components, irregular calcifications, contrast enhancement and extracapsular extension. Moreover, the extragonadal sites of primary could be evaluated, presence of lymphadenopathy and metastatic mesenteric deposits. It is also useful for the evaluation of tumour recurrence and for assessing treatment response. On MRI, these lesions present as bilateral adnexal masses, partly solid-cystic with the solid components being

hypointense on T2-weighted images due to a dense stromal reaction. Presence of ascites indicates poorer prognosis. The prognosis of these metastatic tumours is poor with median survival of 3-10 months.

## CONCLUSION

Krukenberg tumour is an uncommon ovarian neoplasm which may present with varying symptoms. It usually arises from GIT (stomach, colon) but rarely may arise from breast, gall bladder and appendix. Whenever a patient of relevant age group presents with bilateral ovarian masses and uncommon symptoms, other rare primary sites should be considered. A thorough workup is mandatory in such cases. Imaging plays a definite role in the workup and management of such cases.

## REFERENCES


1. Moghazy D, Al-Hendy O, Al-Hendy A. Krukenberg tumour presenting as back pain and a positive urine pregnancy test: a case report and literature review. Journal of Ovarian Research. 2014; 7:36.
2. Osama M Al-Agha,Anthony D.Nicastri. An In-depth look at Krukenberg Tumour: An Overview. Archives of Pathology & Laboratory Medicine. 2006; 130:1725-1730.2006.
3. McGill F, Ritter DB, Rickard C, Kaleya RN, Wadler S and Greston WM. Management of Krukenberg tumors: an 11-year experience and review of the literature. Primary Care Update for OB/GYNS 1998;5:157-158.
4. Jiang R, Tang J, Cheng X, Zang RY. Surgical treatment for patients with different origins of Krukenberg tumours: outcomes and prognostic factors. European Journal of Surgical Oncology: The Journal of the European Society of Surgical Oncology and the British Association of Surgical Oncology. 2009;35:92–97.
5. Ben-Jacob TK, Gordon CR, Koniges F. Krukenberg Tumors: A Review. J Surg Radiol. 2010 Jul 1;1(1).
6. Holtz F and Hart WR. Krukenberg tumours of the ovary: A clinico pathologic analysis of 27 cases. Cancer 1982;50 2438-47.
7. Qiu L, Yang T, Shan XH, Hu MB, Li Y. Metastatic factors for Krukenberg tumour: a clinical study on 102 cases. Medical oncology (Northwood, London, England) 2011;28:1514–19.
8. Jaime Prat. Ovarian carcinomas, including secondary tumors: diagnostically challenging areas. Modern Pathology. 2005; 18:S99–S111.


**Source of Support:** Nil; **Conflict of Interest:** None

**Submitted:** 21-05-2020; **Accepted:** 16-06-2020; **Published:** 14-07-2020