

Case Report: Unusual case of Krukenberg tumour

Tarik Ibrahim Ali ¹, Omar Emad Ibrahim²

¹Assoc.Prof.Doctor/ consultant surgeon¹,Surgery Department, Faculty of Medicine & Health Sciences Kampus Kota, Universiti Sultan Zainal Abidin (UniSZA), Malaysia

²Senior Lecturer in Pathology / Histopathology, Centre of Studies in Preclinical Sciences Faculty of Dentistry, UITM Shah Alam Campus, Malaysia
tarikibrahemali@yahoo.com

Article Info

Received:04.04.2013
Accepted:22.04.2013
Published online:01.06.2013

ISSN: 2231-8313

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ABSTRACT

Krukenberg tumour is a metastatic adenocarcinoma of the stomach. The ovary is commonly considered as a secondary site for the tumour although the metastatic signet ring cell adenocarcinoma is with variant other views for many clinicians. The primary sites of origin classically are the gastrointestinal tract, although it can also be originated from other tissues such as the breast, pancreas and even the gall bladder. The current citation of this case presentation and its importance because of the unusual age of the patient (15 years old) at the time of reporting the tumour. Most cases reported in the literatures concerned with the occurrence of this carcinomatous tumourous affection since Krukenberg discovery which had been found in patients aged 30 years and above.

Keywords: Krukenberg tumour, ovarian tumours, Adenocarcinoma signet-ring.
Metastasis

1. Introduction

It is well known that Krukenberg tumour is a metastatic tumour in the ovary from a primary site, classically the gastrointestinal tract, although it can also be from other tissues such as the breast, pancreas and even the gall bladder. The German gynaecologist and pathologist Friedrich Ernst Krukenberg (1871-1946), reported what he thought was a new type of primary ovarian tumour and named it Krukenberg tumour in 1896, however, six years later these were shown to be of metastatic gastrointestinal tract origin. Paget had actually described this type of tumour in 1854, but had not given it a name (Talia et al. 2010).The carcinoma has been reported in cases accompanied pregnancy (Omar et al. 2011). This case reported and confirms the existence of the adenocarcinoma in a very young (15 years old) female patient.

1.1 Case presentation

A 15 year old female from a remote village area presented at our Surgical Department in the University of Science & Technology Hospital, Sana'a, Yemen, on 1st February 2007, complaining of abdominal pain and distension, repeated vomiting and absolute constipation for one week. On physical examination, the patient appeared ill and underweight, though conscious, co-operative and orientated. The abdomen was distended and the anterior abdominal wall veins dilated and there was tenderness over the whole of the abdomen. Vital signs showed B.P: 110/60 mmHg, temp.37 Celsius, pulse rate 80/min and respiratory rate 22/min. Laboratory tests showed: Hb 5.8, RBCs 2.4, WBC 11.2, patient received 4 pints of blood and Hb raised to 12.6, Serum albumin 2.1, total protein 5.8, serum potassium 3.3, serum sodium 146, and serum calcium 8.3. The blood urea nitrogen, serum Creatinin, AST, ALT where all normal. Widal test was negative. General stool analysis showed cyst and trophozoid of *Entamoeba Histolytica*. Abdominal and pelvic ultrasound showed Multiseptated cystic tumour of both ovaries. Abdominal and pelvic CT scan revealed a Multiseptated cystic tumour of right and left ovaries, measuring 75x70x60mm, 45x42x37mm respectively(Fig. 1), associated with marked dilatation and multiple fluid level with collapsed distal-recto sigmoid loop (Fig. 2), raising the possibility of intestinal obstruction, caused by this cystic ovarian mass. A diagnosis of acute intestinal obstruction due to a tumour compressing the colon was made and the patient scheduled for exploratory Lapratomy. The patient and her family were informed and they agreed with the decision that she should undergo the surgery. An operation was performed on 4th Feb 2007 and it was found that there was a large mass 5x4cm completely obstructing the right side of the transverse colon (Fig. 3&4), both the right and left ovaries had cystic and solid tumour masses of 8x6cm and 6x5cm respectively (Fig. 5) and 2000 cc of a clear yellow amber ascetic fluid was removed (Fig. 6). Limited Resection of the transverse colon removing the tumour, a bilateral oophorectomy and a right colostomy were performed. Histopathology of the removed specimens was consistent with an invasive mucinous adenocarcinoma of the colon (signet ring variety) (Fig. 7, 8). The tumour had invaded the muscular layers extending into the serosa and peri colonic fat with lymphatic, vascular and perinural invasion. Eight of the nine peri colonic lymph nodes found in the specimen proved to have metastasis with extra capsular extension. The resected part of the Omentum showed the presence of the metastatic mucinous adenocarcinoma (signet ring variety), as did the right and left ovarian tumours also (Fig. 9), no malignant cells was found in ascetic fluid. The postoperative course was uneventful and the patient was transferred to the oncology department. She received 6 courses of chemotherapy, and her progress was followed for 9 months, but we lost contact with the patient after that.

2. Results

The histopathology diagnosis of tissue sections from the ovary confirms the existence of a secondary tumour of a type classified as adenocarcinoma originated from the transverse colon. The metastatic adenocarcinoma of both ovaries was of the signet ring type. This finding confirms the case as a metastatic Krukenberg tumour, because the primary tumour was in the transverse colon.

3. Discussion

This type of tumour was named after Friedrich Ernst Krukenberg (1871-1946). The German gynaecologist and pathologist reported, what he thought was a new type of primary ovarian tumour in 1896, but, six years later these tumours were shown to be of metastatic gastrointestinal tract origin. However, Paget had already described the process in 1854. This is a rare tumour accounting for only 1% - 2% of all ovarian tumours (Cosma et al. 2001). In all the reviewed literatures of Krukenberg tumours, all cases have been found in patients of 30 years of age or older (Cosme et al. 2001; Singhal et al. 2009), whereas in our case the patient was only 15 years old at the time of presentation. The condition presented as an acute intestinal obstruction and the CT scan showed there was a possibility of an obstructing lesion to the intestine by a bilateral ovarian tumour mass, but only the histopathology could give the diagnosis of a Krukenberg tumour. This was the case in most of the reviewed literatures, when only the histopathology could give the final diagnosis (Kim et al. 2001; McGill et al. 1998). With regard to the dissemination and metastasis to the ovaries from the primary site, which is the colon in this case, we support the assumption of the lymphatic retrograde spread of malignant cells (Cosme et al. 2001; Kim et al. 2001; Omar et al. 2011) and as shown in our case, of the serosa and peri colonic fat with lymphatic, vascular, perinural invasion and metastasis to peri colonic lymph nodes¹. In 80% of cases Krukenberg tumours occur bilaterally and similarly in our case it was in both ovaries, which is consistent with what it has been mentioned in the literatures (McGill et al. 1998).

4. Conclusion

To achieve a good prognosis in the management of a Krukenberg tumour, which is a metastatic tumour of gastrointestinal origin, the primary site needs to be diagnosed early. Recommended surgical treatment should be radical, as any residual tumour might have an adverse effect on the prognosis. The role of the adjuvant chemotherapy should be evaluated carefully to give a clear idea of how it dose improve the survival rate of patients.

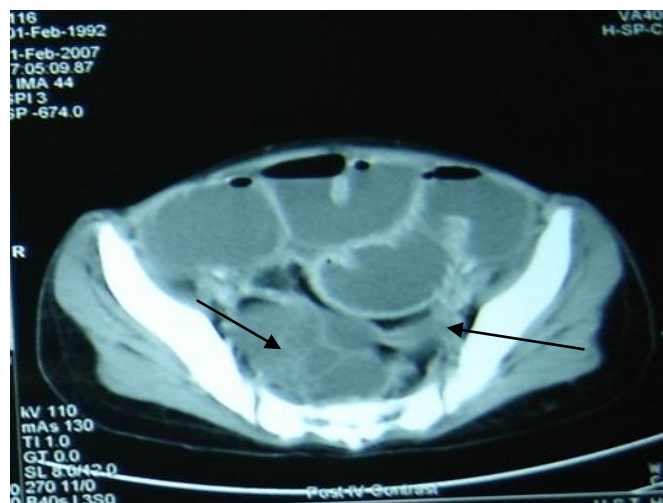


Fig. 1: Pelvic CT showing the Multiseptated ovarian tumour (arrows) with collapsed distal recto-sigmoid loop.

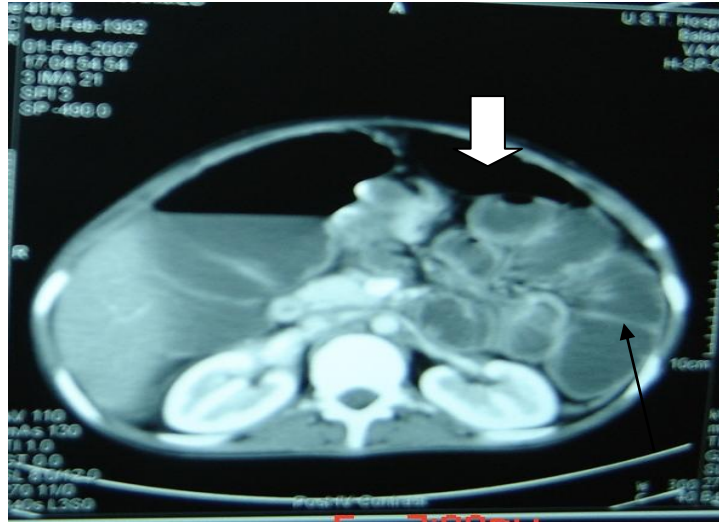


Fig. 2: Abdominal CT scan showing marked dilatation of bowel loops and ascetic fluid.

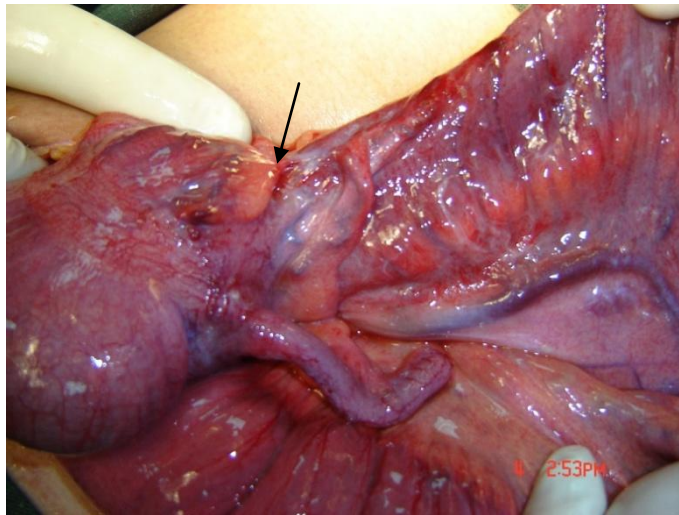


Fig. 3: Operative view of the transverse colon site showed annular constricting tumour mass 5x4cm.

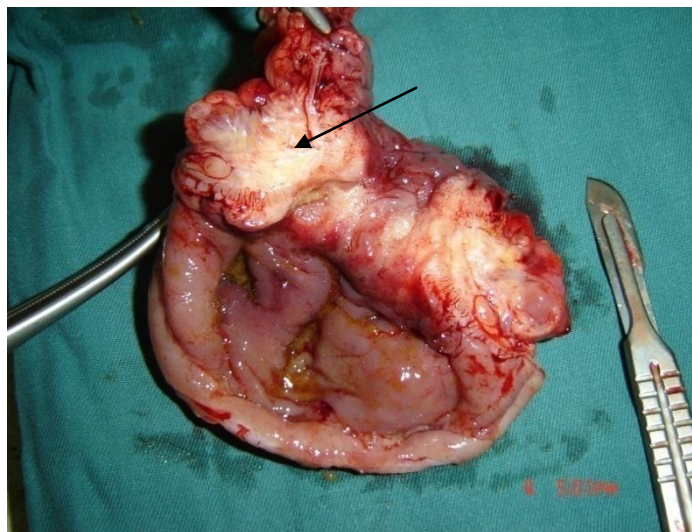


Fig. 4: Gross bisected specimen of resected transverse colon with constricted area and serosal tiny mucinous nodules and white ulcero-infiltrative mass 5x4cm (arrow).

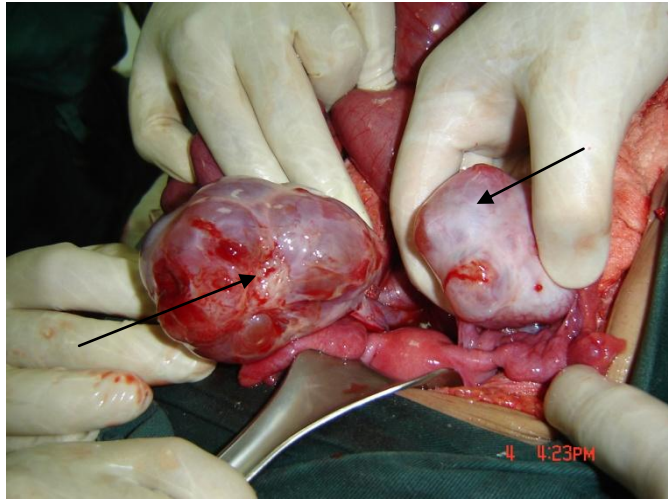


Fig. 5: Operative view showing both right and left ovaries with cystic and solid tumour masses (arrows), 8x6cm and 6x5cm respectively.

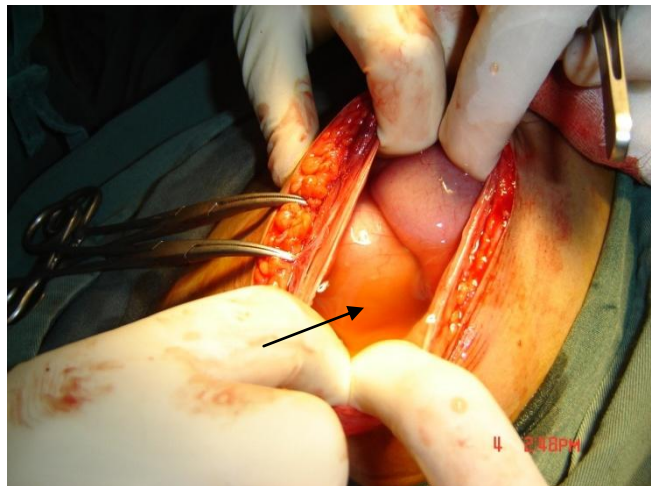


Fig. 6: Operative view showing amber yellow clear ascetic fluid in peritoneal cavity.

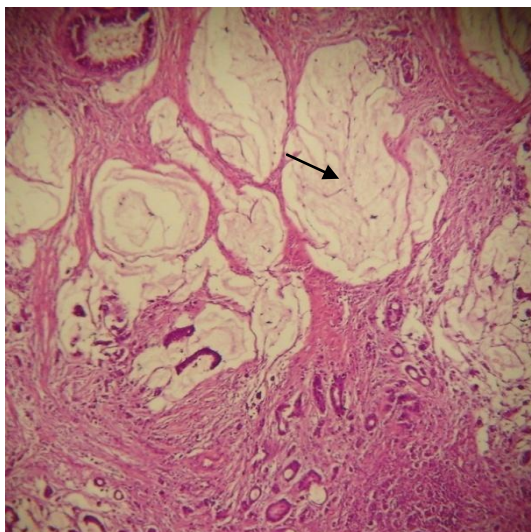


Fig. 7: Photomicrographs of the transverse colon showing signet ring cells with foamy cytoplasm (arrow). (H&E X40).

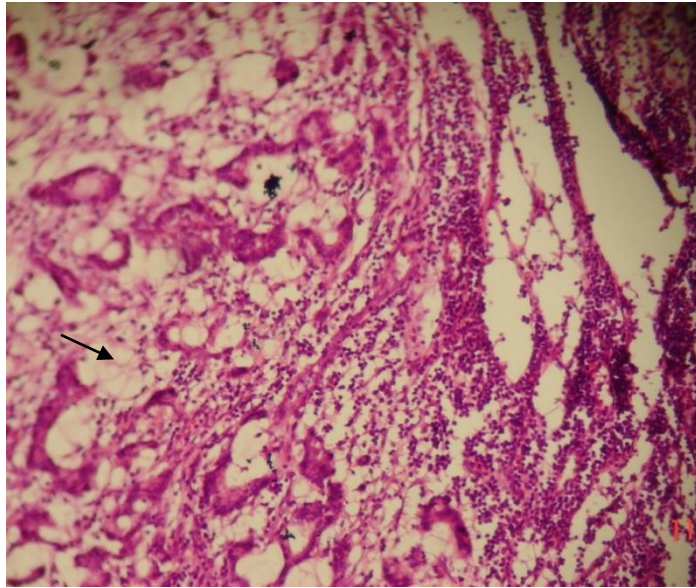


Fig 8: Photomicrographs of the transverse colon showing cancerous cells arranged in thick cords, nests and ill defined glands with characteristic signet ring cell (arrow) (H&E X40).

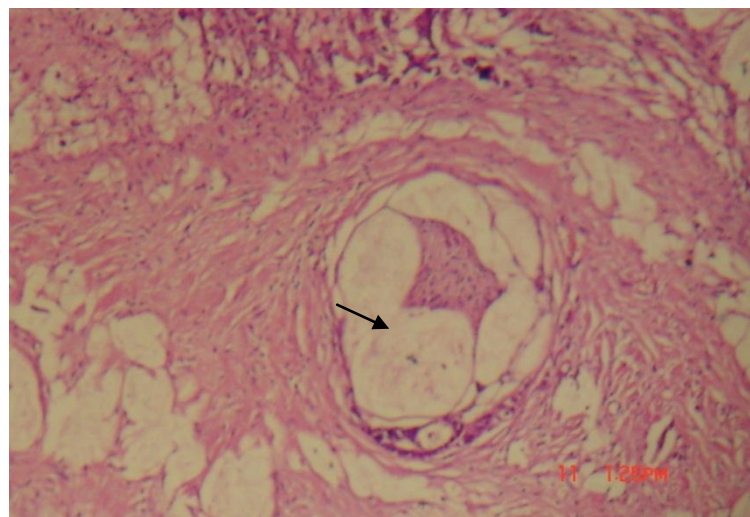


Fig. 9: Photomicrographs of the ovary showing metastatic signet ring cells with foamy cytoplasm (arrow) (H&E X100).

References

- Cosme A, Ojeda E, Bujanda L, Torrado J, Barrio J (2001). Krukenberg tumor secondary to gastric carcinoma in a woman in her eighth month of pregnancy. *Gastroenterology Hepatologia.*; 24(2):63–65.
- Kim HK, Heo DS, Bang YJ, Kim NK (2001). Prognostic factors of Krukenberg's tumor, *Gynecol Oncol.* Jul; 82(1):105-9.
- McGill F, Ritter DB, Rickard C, Kaley RN, Wadler S, Greston WM (1998). Management of Krukenberg tumors: an 11-year experience and review of the literature, *Prim Care Update Ob Gyns.* Jul 1; 5(4):157-158.

- Omar Felipe Dueñas-García, Maricela Diaz-Sotomayor, Charu Chanana (2011). Bilateral Ovarian Krukenberg Tumor in a Full-Term Pregnancy, *ISRN Obstet Gynecol.*; 2011: 620380.
- Singhal SR, Nanda S, Chaudhry P, Sen J, Singhal SK (2009). Metastatic bilateral malignant ovarian tumors associated with pregnancy. *Taiwanese Journal of Obstetrics and Gynecology*. 48(2):167–168.
- Talia K. Ben-Jacob, MD, Chad R. Gordon, DO, and Frank Koniges, MD (2010). Krukenberg Tumors: A Review, *J Surg Radiol*. Jul 1; 1(1).