Krukenberg Cases- a review of radio pathological correlation

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ABSTRACT

Aims/Objectives: Awareness that evaluation of Bilateral ovarian tumours will require consideration of the Gastrointestinal and mammary system for a primary lesion.

Content of presentation: Classically Krukenberg tumours have been described as metastatic bilateral ovarian adenocarcinoma. However, with advances in imaging leading to early malignancy detection in gynaecology as well as other organ systems, it is important to remember that patients presenting with bilateral ovarian tumours could be metastatic and imaging can help in establishing the source. In a review of a number of cases, we look at a variety of radiological presentations and the pathological diagnosis - ranging from classic presentations and additional subtypes including GIST.

Conclusion: With increases in different types of GI and mammary tumors, the classical definition of Krukenberg tumor is now embracing wider pathological variants giving the known radiological picture.

INTRODUCTION

Krukenberg tumours, historically have been defined as metastatic tumours of the ovary. Originally the lesion was described from metastatic gastrointestinal tumour/gastric adenocarcinoma. The bulk of the Krukenberg tumours are usually bilateral. Friedrich E Krukenberg, was the German physician to whom the tumour name is attributed. Although his specialty was mainly ophthalmology, while working with pathologist, he described the metastatic fibro sarcoma of the ovary in a publication in 1896. His brother, Georg Peter Krukenberg (1856-1899), was actually the professor of Gynaecology at the university of Bonn.

PATHOLOGY

Krukenberg tumour is also known as carcinoma mucocellularis. The histological findings are usually mucin secretin, adenoc, or signet ring cells.

Up to 10% of all ovarian tumours are Krukenberg type tumours. Up to 50% of the malignant ovarian tumours have been discovered to be Krukenberg tumours. The presentation can take variable course from months to several years.

ORIGIN: The primary site for Krukenberg tumors in decreasing frequency are Stomach(signet ring), Cerebral, Breast.

These are then followed by lung, contralateral ovary, pancreatic and cholangiocarcinomas have been described.

RADIOLOGY: These are usually mixed cystic solid tumours which can be quite difficult to differentiate radiologically from other primary ovarian neoplasms.

CASE 1

Mammary Invasive ductal carcinoma is most common infiltrative breast cancer. Mucinous subtype is one histological pattern. Treatment is surgical excision of the primary lesion and adjust chemotherapy.

CASE 2

Fig. 1. Left. MRI images showing ascites, liver deposit and peritoneal deposits (blue arrow). There is also infiltration of both ovaries with intermediate signal masses consistent with tumour. Histology confirmed that all sites were consistent with metastatic ductal carcinoma of the breast.

CASE 3

Fig. 2. Photomicrograph of invasive ductal carcinoma of the breast.

Fig. 3. Post contrast CT slices to the left. These show extensive ascites and bulky ovarian masses with calcifications observed in the left ovarian mass (blue arrow). Histology of the omental biopsy, uterus and ovaries showed metastatic adenocarcinoma, most likely from the pancreas.

Fig. 4. (left to right) Axial contrast enhanced CT showing perihelial fluid. T2 Sagittal MRI pelvis shows an irregular mass arising from the posterior wall of the uterus and extending to the rectum (blue arrow). The axial and coronal MRI of pelvis then show peritoneal deposits and intermediate signal adrenal masses with a slight cystic component.

On pathology, the ovaries, fallopian tube and omental sampling showed metastatic signet ring tumour, most likely mucinous adenocarcinoma from the large bowel. Colorectal cancer is the 4th most common cause of mortality.

CASE 4

Fig. 5(left). These are post contrast axial CT slices. These images show a 12 cm lobulated enhancing left renal lesion (blue arrow) and a 22 cm right adrenal lesion. Histology after excision of both lesions, showed conventional clear cell carcinoma with a small papillary renal cell carcinoma. The right ovarian cyst was shown to be metastatic clear cell carcinoma within a serous cystadenofibroma of the ovary.

Renal cell carcinoma is the most common adult renal tumour and accounts for almost 80% of renal tumours. Treatment is nephrectomy but prognosis is worse after metastasis.

CONCLUSION: Gynaecological malignancies may be primarily gynaecological but up to 50% of the time it is important to look for the primary in another organ system.

References:
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