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Journal of Tissue Biology & Cytology

Case Report

Unilateral Krukenberg's Tumor-An Unusual Presentation

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Abstract

Krukenberg's tumor is an uncommon metastatic tumor of the ovary, accounting for 1% to 2% of all ovarian tumors. Stomach is the most common primary site in most cases (70%). Pathologists have to be familiar with the diagnostic histopathologic features of the tumor and its principal differential diagnoses. Awareness of the diagnostic manifestations of the tumor leads to the correct diagnosis and prevents tumor misclassification, thus avoiding improper clinical management. We report a rare case of colorectal adenocarcinoma that presented as a unilateral Krukenberg's tumor in a 45 year old female.

Keywords: Histopathology; Immunohistochemistry; Krukenberg's Tumor; Unilateral

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Received Date: October 29, 2019

Accepted Date: December 24, 2019

Published Date: December 31, 2019

Citation: Akhtar K, Haiyat S, Anees A, Sherwani RK (2019) Unilateral Krukenberg's Tumor-An Unusual Presentation. J Tissue Biol Cytol 3: 004.

Introduction

Krukenberg's tumor is an uncommon metastatic tumor of the ovary, first described in 1896 by Friedrich Krukenberg, a German gynaecologist and pathologist [1]. Stomach is the most common primary site in most cases of Krukenberg's tumor (70%), followed by carcinomas of colon, appendix, and breast. Rare cases of Krukenberg's tumor with primary carcinomas of the gallbladder, biliary tract, pancreas, small intestine, ampulla of Vater, cervix and urinary bladder have been reported [2].

Krukenberg's tumor is uncommon, accounting for 1% to 2% of all ovarian tumors [3]. Pathologists have to be familiar with the diagnostic histopathologic features of the tumor and its principal differential diagnoses. Awareness of the diagnostic manifestations of the tumor leads to the correct diagnosis and prevents tumor misclassification, thus avoiding improper clinical management.

The prognosis of Krukenberg's tumor is very poor. It is a known fact that signet ring cell adenocarcinomas of different organs tend to metastasize to the ovaries, with diffuse gastric adenocarcinoma being the most common [3,4]. The primary carcinoma in Krukenberg's tumor is sometimes clinically occult and warrants a careful thorough examination of the gastrointestinal tract and other sites to detect the primary carcinoma [5].

Case Summary

A 45-year-old female presented with dull aching pain in the left lower abdomen with dyspeptic symptoms, anorexia, altered bowel habits and weight loss for the last 2 years. Ultrasound abdomen revealed a solid heterogeneous 10 cm × 7.8 cm left adnexal mass lesion with anechoic foci, separate from the uterus, urinary bladder and bowel loops with evidence of ascites. Ultrasonography of the abdomen also revealed an ill-defined mass lesion of 3 cm × 2.5 cm in the left iliac fossa. Complete blood count showed decreased haemoglobin levels and mild leucocytosis. Contrast enhanced CT abdomen showed an ill-defined heterogeneous poorly enhancing mass lesion of 8 cm × 6 cm size in the left adnexa with perilesional fat. Serum CA-125 was 143.8 U/ml.

Total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed. The resected left ovary was asymmetrically enlarged, with a bosselated contour with solid yellow-white cut surface and smooth capsule (Figure 1).

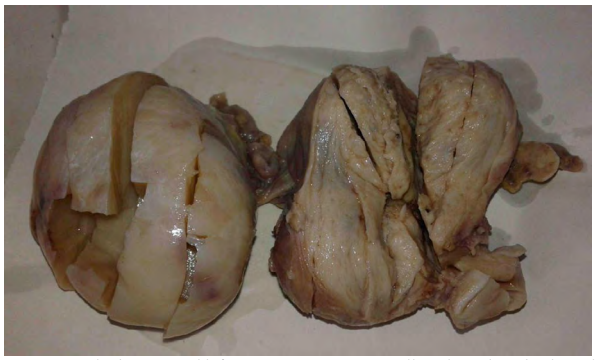

Figure 1: Grossly the resected left ovary was asymmetrically enlarged, with a bosselated contour with solid yellow-white cut surface and smooth capsule.

Microscopically, sections showed 2 components: epithelial and stromal. The epithelial component was composed chiefly of mucin-laden signet ring cells with eccentric hyperchromatic nuclei and eosinophilic granular cytoplasm with mucin vacuoles (Figure 2 and 3).

With the suspicion of primary intestinal malignancy, lower GI endoscopy was performed, which revealed a 4 cm × 4 cm ulcerated lesion at the recto-sigmoid junction. Histopathology of biopsy specimen confirmed signet ring cell adenocarcinoma of mixed diffuse and intestinal type (Figure 4) with PAS positivity (Figure 5).

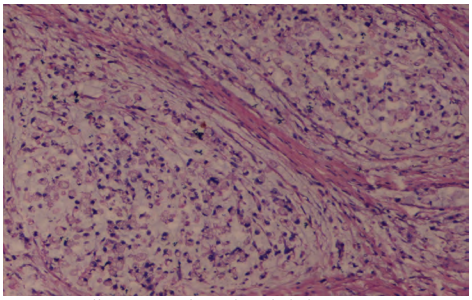

Figure 2: Microscopically, sections showed epithelial component composed chiefly of mucin-laden signet ring cells with eccentric hyperchromatic nuclei and eosinophilic granular cytoplasm with mucin vacuoles. Hematoxylin and Eosin x 10X.

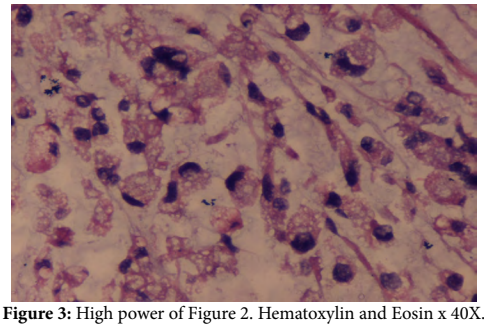

Figure 3: High power of Figure 2. Hematoxylin and Eosin x 40X.

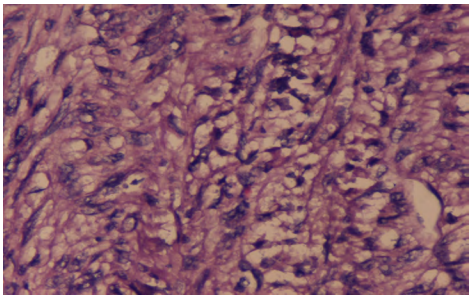

Figure 4: Microscopically, sections showed scattered signet ring cells with eccentric hyperchromatic nuclei and eosinophilic granular cytoplasm admixed with atypical columnar cells. Hematoxylin and Eosin x 40X.

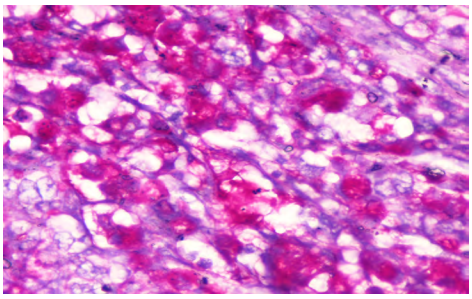

Figure 5: Microscopically tumor cells show PAS positivity. PAS x 40X.

Immunohistochemistry was positive for pancytokeratin (Figure 6).

A diagnosis of metastatic colo-rectal adenocarcinoma with Krukenberg's tumor was made and six 3-weekly cycles of palliative chemotherapy given with cisplatin and capecitabine. Our patient is doing well after 6 months of follow up.

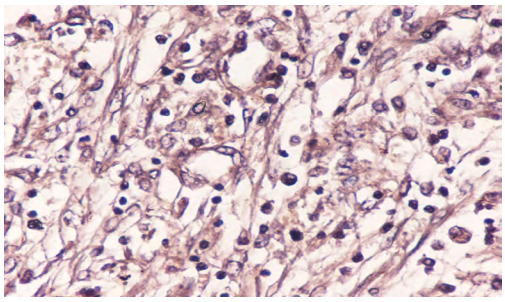

Figure 6: Immunohistochemistry showed diffuse cytoplasmic positivity for cytokeratin. IHC Cytokeratin x40X.

Discussion

Krukenberg's tumors tend to occur in the young females, with an average age of 45 years [6]. Common presenting symptoms are usually related to ovarian involvement, the most common of which are abdominal pain and distension (mainly because of the usually bilateral and often large ovarian masses). The remaining patients have nonspecific gastrointestinal symptoms or are asymptomatic [7,8]. Krukenberg's tumor is also associated with virilization resulting from hormone production by the ovarian stroma [9]. Ascites is present in 50% of the cases and usually reveals malignant cells [8].

Stomach is the most common primary site of Krukenberg's tumors, but other organs can serve as a primary site. The lymphatic system is the most likely route for metastasis.

The diagnosis of the primary carcinoma can be made either preoperatively, during the operation for the ovarian metastasis, or within a few months postoperatively [10]. Often, the primary tumor is too small to be detected. In such a situation, diagnosis of Krukenberg's tumor warrants careful radiographic and endoscopic exploration of the digestive system in an attempt to detect the primary carcinoma [11]. Radiologically, Krukenberg's tumors on abdominopelvic sonography and computed tomographic scans usually appear as bilateral solid to cystic ovarian masses [12].

The prognosis of a patient with Krukenberg's tumor is extremely poor with average survival time between 3 and 10 months. Only 10% of patients survive more than two years after diagnosis [8]. Treatment of patients with Krukenberg tumor is still controversial. Some studies have demonstrated a prolonged survival after resection of both primary tumor and ovarian metastases.10Some other studies have suggested that metachronous ovarian metastases or unilateral ovarian metastases might correlate with good survival and ovarian metastasectomy may be beneficial [11].

Conclusions

Krukenberg's tumor is a metastatic ovarian tumor that is histologically characterized by mucin-laden signet ring cells. Diagnosis of Krukenberg's tumor with unknown primary warrants careful investigation of mainly the digestive tract and other potential sites. CA 125 levels can be used for screening for early detection of ovarian metastasis as well as for monitoring the course of disease.

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