A CASE REPORT OF A METACHRONOUS KRUKENBERG TUMOR: DIAGNOSTIC AND THERAPEUTIC CHALLENGES.

A Bensetti [1], H. Remouche [2], K Belkharroubi [3]

Oran University Hospital Center (CHU Oran) / Algeria

Abstract

Introduction: Krukenberg tumor is a malignant ovarian metastasis, primarily of gastric origin, with a poor prognosis. This case illustrates the challenges posed by its metachronous presentation and management.

Keyword: Krukenberg Tumor, Ovarian Metastasis, Gastric Cancer, Diagnosis, Treatment, Case Report.

1.INTRODUCTION

Krukenberg tumor is a malignant ovarian metastasis, primarily of gastric origin, with a poor prognosis. This case illustrates the challenges posed by its metachronous presentation and management.

Materials and Methods: We report the case of a 46-year-old woman, initially treated in 2021 for a stage IIIB gastric adenocarcinoma with 4/5 gastrectomy and adjuvant chemotherapy. Her case was analyzed retrospectively (medical records, imaging, pathology).

Results: Three years after remission, the patient presented with pelvic pain. Imaging (CT, MRI) revealed bilateral O-RADS 5 ovarian masses, suggestive of Krukenberg tumors, associated with pelvic fluid. After failure of systemic chemotherapy, a bilateral annexectomy was performed. Pathological examination confirmed the diagnosis of ovarian metastasis from a poorly differentiated gastric adenocarcinoma with signet-ring cells, along with peritoneal carcinomatosis.

Discussion: This case highlights the possibility of late metachronous recurrence in the form of Krukenberg tumor, despite an initially seemingly complete treatment. It underscores the difficulty of differential diagnosis and the imperative for a multidisciplinary approach integrating surgery, chemotherapy, and molecular profiling to optimize the management of this aggressive disease.

Keywords: Krukenberg Tumor, Ovarian Metastasis, Gastric Cancer, Diagnosis, Treatment, Case Report.

2. INTRODUCTION

Krukenberg tumor is a secondary ovarian metastasis, most often of gastric origin. It represents approximately 10% of ovarian tumors worldwide, with a higher incidence in East Asia due to the prevalence of gastric cancer. Dissemination occurs primarily via the lymphatic route. Symptoms include pelvic pain, ascites, and irregular vaginal bleeding. The primary gastric cancer can sometimes remain unidentified. The prognosis is unfavorable, with an average survival of 14 months. Treatment is based on surgery and chemotherapy.

Main Objective

This clinical case illustrates the clinical, radiological, and therapeutic aspects of a Krukenberg tumor secondary to gastric cancer, supported by an updated review of the literature.

Materials and Methods:

Our study is based on the retrospective analysis of the medical file of a 46-year-old patient presenting with a Krukenberg tumor secondary to gastric adenocarcinoma, including operative reports (4/5 gastrectomy with D1 lymphadenectomy), imaging

studies (initial CT and pelvic MRI at recurrence), anatomopathological results (H&E staining and immunohistochemistry), multidisciplinary team meeting (MDT) reports, as well as the therapeutic protocol (adjuvant FOLFOX chemotherapy followed by palliative chemotherapy), with follow-up according to RECIST criteria and the indication for surgery.

Case Presentation:

We report the case of a 46-year-old female patient (42 years old at initial diagnosis), from Oran, followed for a stage IIIB antro-pyloric gastric adenocarcinoma (pT3N1M0) diagnosed in February 2021 based on symptoms of tumor stenosis. She received initial management comprising a 4/5 gastrectomy with termino-lateral gastrojejunal anastomosis and D1 lymph node dissection (2N+/26N), followed by initial adjuvant chemotherapy with 6 cycles of FOLFOX (April to July 2021), interrupted due to an allergic reaction to oxaliplatin and switched to a 5FU-LV2-carboplatin combination until October 2021. Three years after this treatment, in November 2024, the patient presented with pelvic pain and a sensation of heaviness, prompting a complete imaging workup. Thoraco-abdomino-pelvic CT scan revealed suspicious solid-cystic formations lateral to the uterus, confirmed by pelvic MRI as bilateral ovarian lesions classified as O-RADS 5, highly suggestive of Krukenberg tumors, associated with a moderate amount of pelvic fluid and hydrosalpinx, in the context of a normal CA-125 tumor marker level of 15.40 UI/ml. The workup also revealed subcentimeter pulmonary and hepatic nodules of indeterminate significance. The Multidisciplinary Team Meeting (MDT) of November 19, 2024, faced with the differential diagnostic problem between ovarian metastases of gastric origin (Krukenberg tumor) and primary ovarian tumor, initially recommended performing a complete molecular workup (HER2 and PDL1 status) and proposed initiating first-line systemic chemotherapy adapted to the molecular profile, while emphasizing the need for close monitoring of the hepatic and pulmonary nodular lesions. Given the lack of response to chemotherapy, the patient underwent surgery in May 2025; she had a bilateral annexectomy with biopsy of a peritoneal nodule. The pathological study confirmed a metastatic localization to the left ovary of a poorly differentiated adenocarcinoma with signet-ring cells, as well as peritoneal involvement. The patient's case was discussed in an MDT, and it was decided to refer the patient back to medical oncology for management.

Surgical Procedure: Subumbilical midline laparotomy. Exploration: Moderate ascites, left ovarian mass approximately 12 cm in largest diameter with carcinosis nodules in the pouch of Douglas. Procedure Performed: Bilateral annexectomy + biopsy of the carcinosis nodule.

Pathology: Secondary localization in the left ovary of a poorly differentiated adenocarcinoma (ADK) with a signet-ring cell component, peritoneal metastasis.
The patient was discussed in a multidisciplinary team meeting and referred to medical oncology for palliative chemotherapy.

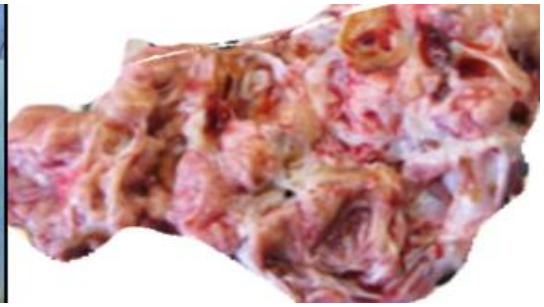

Figure1 **Figure2**

Figure 1 : Aspect en IRM de masses annexielles bilatérales (O-RADS 5)
Figure2 :Aspect macroscopique de la tumeur de krukenberg

3. DISCUSSION:

Krukenberg tumors (KTs), first described in 1895 by Friedrich Krukenberg, represent 1-2% of ovarian tumors and are defined as ovarian metastases from an adenocarcinoma, most often of gastric origin, characterized by the presence of mucin-secreting "signet-ring" cells within a reactive pseudo-sarcomatous stroma [1-3]. These tumors preferentially affect women during their reproductive years, with an average age of 40 to 50 years, and are bilateral in 80% of cases [3-6]. The primary origin is digestive in more than 90% of cases: gastric (70%, especially pyloric), colonic (14%), pancreatobiliary (5%), and appendiceal (2.5%) [2-4]. Dissemination occurs mainly via the lymphatic route, but also hematogenously or transcoelomically, explaining the frequent ovarian involvement in young women [7]. Clinically, KTs are often silent or non-specific (pelvic pain, abdominal mass, ascites, metrorrhagia), leading to often late diagnosis, sometimes even before the detection of the primary tumor [3,8,9]. Pelvic imaging (ultrasound, CT, MRI) reveals bilateral, solid-cystic ovarian masses, without allowing distinction between a primary tumor and a metastasis [10]. Diagnosis relies on histology, showing mucin-rich signet-ring cells, and on immunohistochemistry, which points towards a digestive origin (CK7, CK20, CDX2) [8]. Tumor markers, notably CA-125 and CEA, are frequently elevated but non-specific; their levels are correlated with prognosis [4]. Management is based on surgery (bilateral annexectomy) and chemotherapy adapted to the primary tumor (5-FU, cisplatin, adriamycin), sometimes supplemented by HIPEC in selected cases [12-14]. The prognosis remains poor, with a median survival of 12 to 14 months (reduced to 2 months in some African series), linked to late diagnosis, the presence of ascites or carcinomatosis, bilaterality, and the absence of radical treatment [3,5,15]. Current recommendations emphasize systematic digestive exploration in the presence of any suspicious ovarian mass, and conversely, gynecological evaluation (imaging and clinical examination) in any woman with digestive cancer [3,11]. Prophylactic bilateral oophorectomy has even been suggested during surgery for advanced digestive cancers, particularly in low-resource settings [12]. Krukenberg tumors remain an aggressive pathology, for which the best management involves a multidisciplinary approach and earlier detection.

4. CONCLUSION:

This case highlights the possible metachronous evolution of gastric adenocarcinomas, marked by the late occurrence of typical ovarian metastases. It also underscores the importance of multidisciplinary management, combining histological re-evaluation, advanced imaging, and biomarkers, to optimize the therapeutic strategy. Finally, surgical management combined with targeted chemotherapy, within the framework of personalized and coordinated treatment, currently constitutes the best option for improving prognosis.

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