EMERGENCY SURGICAL TREATMENT OF GIANT BILATERAL METACHRONUS KRUKENBERG TUMORS OF SIGMOID ORIGIN: A CASE REPORT

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CASE REPORT

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Abstract

Krukenberg tumors are metastatic malignancies of the ovaries that consist of mucin-rich signet-ring adenocarcinomas. The stomach is the primary site in most cases (70%), while carcinomas of the colon, appendix and breast (mostly invasive lobular carcinomas) are the next most common sites. We present the case of a 56-year-old female with a history of a stage IV M1 hep sigmoid adenocarcinoma who underwent neoadjuvant chemotherapy. During this time a tumoral mass in the lower abdomen kept developing and growing bigger and bigger, causing subocclusive symptoms by external compression, such as intermittent constipation, cramping pains with lack of flatus and episodes of vomiting. A CT scan of the abdomen was performed, which showed a uterus of large dimensions, a myometrium of inhomogeneous structure with multiple nodules that could not be separated from the adnexal masses and tumoral masses in both ovaries with important growth in dimensions, currently measuring 16/12/15 cm (trans/a-p/c-c) for the right ovary and 14/12/11 (trans/a-p/c-c) cm for the left ovary, in contact with each other cranially and extended up to the subhepatic land mesogastrium level. A total hysterectomy with bilateral anexectomy was performed, in order to improve patient's condition and to help her continue her chemotherapy. The postoperative recovery went smooth, the patient resumed her transit 6 days after the intervention. Krukenberg tumors are rare ovarian metastatic tumors, that can be more aggressive than the primary tumor itself and can even endanger patient's life due to their acute symptoms, for which they may require per primam surgical intervention before tackling the primary tumor.

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Introduction

Krukenberg tumors are metastatic malignancies of the ovaries that consist of mucin-rich signet-ring adenocarcinomas. They comprise 1% to 2% of all ovarian tumors. The primary site of the tumor is usually a gastrointestinal one, the stomach being most frequently described, while the next most common site is attributed to the colorectal primary tumors. Cases of metastatic Krukenberg tumors have been also observed in breast, appendix, small intestine, gallbladder, biliary bladder, urinary bladder, pancreas, ampulla of Vater, or uterine cervix primary tumors. Krukenberg tumors are bilateral in more than 80% of the reported cases. The ovaries are usually asymmetrically enlarged, with a bosselated contour [1-4].

Case presentation

A 56-year-old female revisited her general surgeon for symptoms of intermittent constipation, cramping pains with few episodes of vomiting and lack of flatus for approximately one month.

On first sight, an enlarged abdomen could be easily observed (Figure 1). From her personal medical history, we note that she had a stage IV M1HEP sigmoid adenocarcinoma for which a prophylactic colostomy was performed.

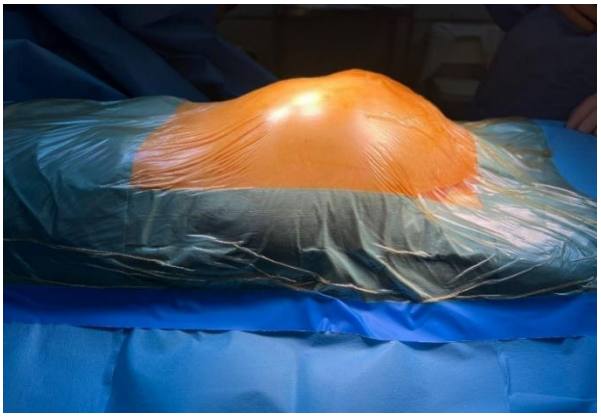

Figure 1 - The patient's abdomen, enlarged by the voluminous tumoral adnexal masses

The patient underwent palliative chemotherapy and received 12 series of FOLFOX VI + EGFRi (epidermal growth factor receptor inhibitors because of the wild type status of the of RAS gene) every 2 weeks and 6 other maintenance series with 5FU + leucovorin + EGFRi every two weeks (oxaliplatin was removed because of the chemotherapy-induced polyneuropathy), all with good gastrointestinal tolerance. Because a partial response of the disease was seen on patient's CT scans, after nine months of treatment, she asked for a chemo holiday. After 28 days of chemotherapy-free treatment interval, she presented with ECOG 1, an enlarged abdomen and important weight loss associated with fatigue and loss of appetite. A subocclusive syndrome was also developing by external compression of the giant tumoral masses, that could possibly endanger patient's life, as her general condition was slowly degrading.

When admitted into the hospital, the vital signs and laboratory findings were within normal limits, except for an elevated CRP (10.01 mg/dl), a slightly low hemoglobin level (10.9 mg/dl) and an elevated CA-125 level (77 U/mL). Computed tomography (CT) showed an uterus of large dimensions, with a linear endometrium, a miometrium of inhomogeneous structure with multiple nodules that cannot be separated from the adnexal masses. The tumoral masses of both ovaries presented important growth in dimensions, currently measuring 16/12/15 (trans/a-p/c-c) cm for the right ovary and 14/12/11 (trans/a-p/c-c) cm for the left ovary, in contact with each other cranially and extended up to the subhepatic land mesogastrium level. Slightly asymmetric circumferential parietal thickening of the sigmoid colon with a maximum thickness of

10 mm and length of 4 cm is also being observed (Figures 2 and 3).

Figure 2 - Abdominal computed tomographic scan showing a large tumoral mass in the pelvis which pertains to the ovaries. The colostomy on the side of the abdominal wall can also be observed.

Figure 3 - Sagittal CT scan view of the tumoral adnexial mass that extends to the subhepatic level and is creating a subocclusive syndrome.

Based on these findings and on the patient's medical record, we suspected a case of an ovarian metastasis, more precisely a Krukenberg tumor, preoperatively. As we are familiar with the aggressive and dangerous nature these metastatic tumors, the surgical indication was not further delayed and an emergency total hysterectomy with bilateral anexectomy was performed (Figures 4 and 5). The metastatic tumors were approached per primam because of the acute symptoms they were inducing and also to improve patient's condition and help her continue her chemotherapy. The histological exam of the resected specimens confirmed the sigmoid origin of the metastatic ovarian tumors.

The postoperative recovery went smooth. The patient received, however, prophylactic antibiotic therapy, she resumed her transit six days after the intervention and she was discharged within nine days of hospitalization with normal vital signs and normalized bioumoral markers and a decreased CA-125 serum level (61 U/mL). Post-surgical one month follow-up depicts a patient with visibly improved general condition, remitted gastrointestinal symptoms, an increased appetite and a weight gain of three kilograms and who is, also, about to start palliative chemotherapy.

Discussions

We decided to bring forward this case in order to emphasize the fact that Krukenberg tumors can be more aggressive than the primary tumor itself and can even endanger patient's life due to their acute symptoms, for which they may require per primam surgical intervention before tackling the primary tumor. Another particularity of this case is that the ovarian metastasis had a fulminant evolution within a very short period of time, during chemotherapy. Their early and prompt diagnosis, alongside quick surgical intervention, are some of the elements of utmost importance for patient's outcome and

overall survival. Unfortunately, this type of tumor is related to a severe prognosis due to its aggressiveness, difficulties in establishing a correct diagnosis and poor treatment efficacy.

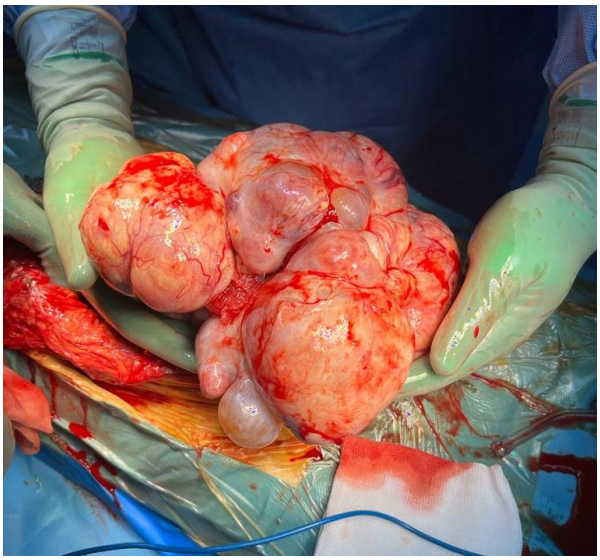

Figure 4 - The right adnexial tumor mass before resection.

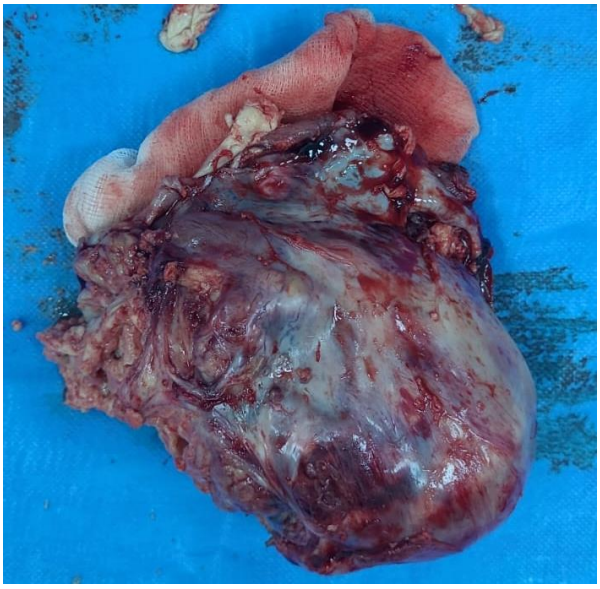

Figure 5 - Left adnexial tumor mass.

There are several treatment options available, such as cytoreductive surgery (CRS), adjuvant chemotherapy and hyperthermic intraperitoneal chemotherapy (HIPEC). However, to this date, it is still unclear which treatment options combined are the most effective in terms of overall survival. No optimal treatment strategy for Krukenberg tumors has been clearly established in the literature.

In a metanalysis following treatments and overall survival in patients with Krukenberg tumor revealed that a significant number of studies showed that cytoreductive surgery improved patient's survival, compared to other treatments or association of treatments without it and its main conclusion was that R0 CRS paired with HIPEC seem to be the most effective and safe therapeutic options for these patients [5]. Another study concerning postoperative chemotherapy for ovarian metastasis from colorectal cancer also showed that patients who underwent R0 resection of ovarian metastases had a better prognosis than those who underwent R1/2 resection [6], [7]. These, alongside a variated number of study, reveal that CRS is usually the one most recommended by surgeons as it improves patient's survival [8-10].

Sadly, the prognosis of these tumors is reserved and the overall mortality rate is significantly high. Following the review of literature we did, authors in almost all reported cases highlight the gloomy outcome of this tumor. A number of studies reveal that the prognosis is poor to begin with for patients who underwent surgery on the ovarian tumor simultaneously or before the surgery on the primary carcinoma, compared with the prognosis of the patients who underwent surgery on the ovarian tumor after the surgery on the primary carcinoma [11-13].

The early detection of ovarian metastasis and the importance of serum CA 125 level monitoring are of great significance and also two of the most important variants that determine the prognosis of the patient. In these cases, the preoperative CA 125 serum level can be elevated and then slowly decrease after tumor resection. A study showed that it can also predict the prognosis and survival when the normalization of CA 125 serum level take place within 60 days after cytoreductive

surgery followed by adjuvant chemotherapy [14], [15].

Conclusions

In conclusion, we report a patient with metachronus Krukenberg tumor from a sigmoid adenocarcinoma, which had rapidly expanded during chemotherapy causing acute subocclusive symptoms that required an emergency treatment management. Intensive follow-up is necessary because of the aggressive nature of the tumor in this patient. To initiate the palliative chemotherapy for this patient would be the next step in the treatment management plan and is already up for discussion.

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