Marmara Medical Journal 2014; 27: 207-9
DOI: 10.5472/MMJ.2014.03283.1

CASE REPORT / OLGU SUNUMU

Bilateral ovarian Krukenberg tumor at mid-gestation

İkinci trimesterde bilateral ovaryen Krukenberg tumörü

Tevfik YOLDEMİR

ABSTRACT

Even though adnexal masses are detected during pregnancy ranging from 1 to 81 to 1 in 2.500 pregnancies, only 3% of these are malignant. A Krukenberg tumor is an ovarian metastasis of a gastric tumor and accounts for 1-2% of all ovarian tumors. A 29-year-old woman, gravida 3, para 2, was referred to our unit at 20 weeks' gestation because of epigastric pain for the last one week. Her abdominal ultrasound revealed a singleton pregnancy, with fetal measurements compatible with 20 weeks of gestation. A solid mass of 12.8 cm by 12 cm localized posterior to the uterus extending to both adnexial regions was also detected. Under general anesthesia, a midline abdominal incision was made. During abdominal inspection the gravid uterus was the size appropriate for the current gestational week. A 12 cm by 13 cm mass originating from the right ovary was excised. Then, a 17 cm by 18 cm mass originating from the left ovary was excised. The final pathology report confirmed positive washing cytology and a metastastic adenocarcinoma of both ovaries. Three weeks later, the woman had a gastroscopic biopsy and the pathology report was of an adenocarcinoma of the stomach. Unfortunately, the woman was lost to follow-up.

Keywords: Ovarian tumor, Pregnancy, Metastatic tumor

ÖZET

Gebelikte adneksiyal kitleler 1/81 ile 1/2,500 sıklıkta görülse de bunların sadece %3'ü maligndir. Krukenberg tümörü, gastrik tümörün yumurtalıklara metastazıdır ve tüm over kanserlerinin %1-2sini oluşturur. Son bir haftada epigastrik ağrısı olan 29 yaşında 20.gestasyonel haftasında olan gravida 3, parite 2 bir kadın ünitemize refere edildi. Abdominal ultrasonografide 20 gebelik haftası ile uyumlu biyometrik ölçümleri olan bir bebek izlendi. Ayrıca her iki adneksiyal alana doğru uzanan rahimin arkasında yerleşimli 12,8 x 12 cm çapında solid kitle tespit edildi. Genel anestezi altında orta hat kesisi ile batına girildiğinde haftasıyla uyumlu büyüklükte gebe uterus izlendi. Sağ overden kaynaklanan 12 x 13 cm kitle eksize edildi. Sol overden kaynaklanan 17 x 18 cm kitle eksize edildi. Nihai patoloji sonucu pozitif batıniçi yıkama sıvısı ve her iki overe adenokarsinom metastazı olarak geldi. Üç hafta sonra yapılan gastroskopik biyopsinin patoloji sonucu midenin adenokarsinomu olarak geldi. Hastamız takiplere gelmedi.

Anahtar kelimeler: Ovaryen tümör, Gebelik, Metastatik tümör

Introduction

Even though adnexal masses detected during pregnancy can range from 1 to 81 to 1 in 2.500 pregnancies, only 3% of these are malignant. A Krukenberg tumor is an ovarian metastasis of a gastric tumor and accounts for 1-2% of all ovarian tumors [1]. These tumors are even rarer during pregnancy, because the incidence of gastric cancer in women of reproductive age is only 0.4%-0.5% [2]. Krukenberg tumors are usually secondary to a cancer in the gastrointestinal tract or in the breast [3]. When associated with a pregnancy, the diagnosis of a Krukenberg tumor is seldom made before or during laparotomy [4]. The diagnosis during a pregnancy is very difficult because gastrointestinal symptoms may be attributed to hyperemesis gravidarum and abdominal distention due to the growing fetus. The symptoms may mask bilateral ovarian tumors [5].

We present a case report of a woman 20 weeks pregnant with massive bilateral Krukenberg tumors.

Tevfik Yoldemir,
Department of Obstetrics and Gynecology, Marmara University Hospital, Ust Kaynarca, Pendik, Istanbul, Turkey
e-mail: tevfik.yoldemir@gmail.com

Submitted/Gönderilme: 24.03.2014 **Accepted/Kabul:** 20.05.2014

Case Report

A 29-year-old woman, gravida 3, para 2, was referred to our unit at 20 weeks' gestation because of epigastric pain for the past week. Her previous medical or surgical history was uneventful. Pelvic examination displayed a solid semi-fixed mass in the pouch of Douglas. Her abdominal ultrasound revealed a singleton pregnancy, with fetal characteristics compatible with 20 weeks of gestation. A solid mass 12.8 cm by 12 cm localized behind the uterus and extending to both adnexial regions was also detected. Magnetic resonance imaging (MRI) showed a lobulated solid mass with smooth contours measuring 12x14x11 cm in diameter in the pouch of Douglas and a 8x6x9 cm mass in the right para-colic region. There were lymphadenopathies along the para-aorto-caval area. The serum Ca 125 level was 216.9 U/ml, Ca 19-9 was 4.55 U/ml and alpha-fetoprotein (AFP) was 251 U/ml. Explorative laparotomy was planned.

Under general anesthesia, a midline abdominal incision was made which extended upwards to within 2 cm of the umbilicus for a good visual exposure. Preoperative abdominal washing was done and the sample was sent for a cytological examination. During abdominal inspection the gravid uterus was the size appropriate for the current gestational week. A 12 cm by 13 cm mass originating from the right ovary was excised. Then, the 17 cm by 18 cm mass originating from the left ovary was excised and sent to the pathology laboratory (Figure 1). The peritoneal, intestinal and liver surfaces of the mass were smooth at palpation. The pre-op washing was negative for malignancy. Frozen sections showed a Sertoli Leydig cell ovarian tumor.

After abdominal washing and control of the bleeding, the abdominal layers were properly approximated. The postoperative period was unremarkable. The patient was discharged on her 2nd post-operative day.

The final pathological examination revealed positive washing cytology and a diffuse type of gastric adenocarcinoma with signet ring morphology, similar to ovarian tumors.

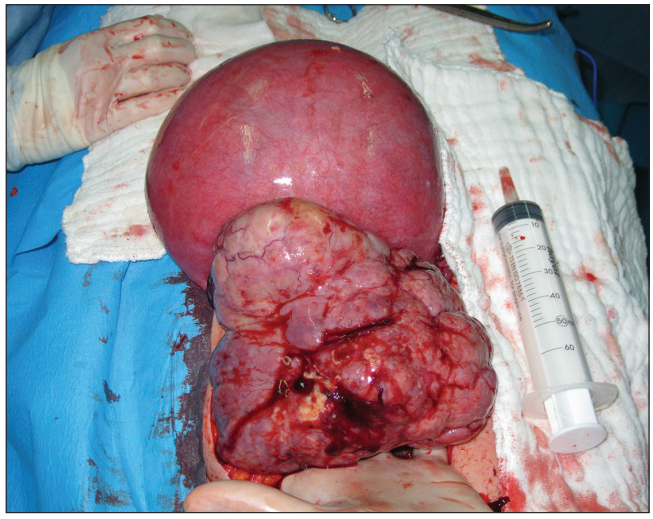

Figure 1. Bilateral adnexal mass posterior to the gravid uterus

Discussion

Cancer of the ovary complicating a pregnancy occurs very rarely, and the incidence usually given is 1 in 10.000 to 25.000 deliveries [6]. The malignancy rate of ovarian tumors in pregnancy has been reported to be 0.3–5.5% [3,6]. Of metastatic tumors of the ovary 11% among 45 malignant ovarian tumors was reported complicating pregnancy [6]. The characteristic ultrasonographic appearance of a Krukenberg tumor in non-pregnant women has been described [7]. Krukenberg tumors had earlier been described to have distinct tumor margins, an irregular hyperechoic solid pattern and a "moth-eaten" appearance of cyst formation [7]. In our patient a solid mass with smooth contours measuring 12x14x11 cm in diameter in the pouch of Douglas and a 8x6x9 cm mass in the right para-colic region were detected by MRI. On the basis of the sonographic features three categories were identifiedfor Krukenberg tumors arising from a gastric carcinoma: solid, mixed or cystic type [8]. Ninety percent of the metastases from the colon were either cystic or mixed and eighty percent of metastases from the stomach appeared to be solid [9]. The ovarian metastases from the colon and rectum are different from those of gastric origin [10].

The cornerstone of the management of these tumors is the diagnosis of the gastrointestinal primary tumor. The prognosis worsens when the primary tumor is identified after the metastasis to the ovary is discovered [2]. The woman in our case had gastroscopy after the laparotomy, which confirmed advanced gastric cancer.

There is no current standardization for the diagnosis or the treatment of Krukenberg tumors because of the rare nature of these tumors [11]. The role of debulking surgery and chemotherapy with platinum-based chemotherapy can be relatively safely administered during pregnancy. But despite the interventions, the prognosis is poor as it generally represents an advanced stage of the disease, and this was evident in our patient with the discovery of large masses. This patient was lost to follow-up even though her chemotherapy had been planned. In the postoperative period the patient could have been started on chemotherapy with 6 cycles of chemotherapy using 5-fluorouracil (2000 mg/m2)

and oxaliplatin (50mg/m2) on a weekly schedule [12]. Later she would have undergone an elective cesarean delivery and debulking surgery including hysterectomy and omentectomy if she had not been lost to follow-up.

Although the diagnosis of a Krukenberg tumor during pregnancy is challenging, possible early detection with debulking surgery, and platinum-based chemotherapy may improve the survival of the patients [11]. Persistent epigastric pain in a relatively young pregnant woman warrants a detailed evaluation with panendoscopy and color Doppler examination. Assessment of ovarian tumor vascularity with transabdominal color Doppler imaging may reveal an abnormal vascular pattern with high-velocity, low-impedance signals within the heterogeneous solid masses [8].

Declaration of Interest: The authors report no conflicts of interest

References

1. Singhal SR, Nanda S, Chaudhry P, Sen P, Singhal SK. Metastatic bilateral malignant ovarian tumors associated with pregnancy. Taiwan J Obstet Gynecol 2009; 48:167–8. doi:10.1016/S1028-4559(09)60280-1
2. Tamussino K, Scholl W, Reich O, Winter R. Gastric carcinoma presenting as a Krukenberg tumor in the 24th week of gestation. Eur J Obstet Gynecol Reprod Biol 1995;62:251–2. doi: 10.1016/0301-2115(95)02179-B
3. Stojnic J, Stefanovic A, Jeremic K, Kadija S, Jeftovic M, Jeremic J. Krukenberg tumor of gastric origin in pregnancy with dismal outcome. Eur J Gynaecol Oncol 2011;32:356-8.
4. Genç M, Genç B, Solak A, Gür E, Sezgin C. Bilateral Krukenberg tumor in a 16-week pregnant woman. Eur J Gynaecol Oncol 2014;35:95-6.
5. McGill FM, Ritter DB, Rickard CS, et al. Krukenberg tumors: can management be improved? Gynecol Obstet Invest 1999;48:61–5.
6. Antonelli NM, Dotters DJ, Katz VL, Kuller JA. Cancer in pregnancy: a review of the literature. Part I. Obstet Gynecol Surv 1996;51:125–34.
7. Shimizu H, Yamasaki M, Ohama K, Tadaharu N, Tanaka Y. Characteristic ultrasonographic appearance of the Krukenberg tumor. J Clin Ultrasound 1990;18:697–703.
8. Choi BI, Choo IW, Han MC, Kim CW. Sonographic appearance of Krukenberg tumor from gastric carcinoma. Gastrointest Radiol 1988;13:15–8.
9. Megibow AJ, Hulnick DH, Bosniak MA, Balthazar EJ. Ovarian metastases: computed tomographic appearances. Radiology 1985;156:161–4.
10. Papakonstantinou E, Liapis A, Kairi-Vassilatou E, Iavazzo C, Kleanthis CK, Kondi-Pafiti A. Virilizing ovarian Krukenberg tumor in a 27-year-old pregnant woman. A case report and literature review. Eur J Gynaecol Oncol 2011;32:331-3.
11. Sandmeier D, Lobrinus JA, Vial Y, Delaloye JF, Genton CY. Bilateral Krukenberg tumor of the ovary during pregnancy. Eur J Gynaecol Oncol 2000;21: 58–60.
12. Due˜nas-Garcia OF, Diaz-Sotomayor M, Chanana C. Bilateral ovarian Krukenberg tumor in a full-term pregnancy. ISRN Obstet Gynecol 2011;2011:620380. doi:10.5402/2011/620380