Bilateral immature ovarian teratoma in a 12-year-old girl: case report

Lyliana Coutinho Resende Barbosa[1], Antônio Marcos Coldibelli Francisco[1], Silvânia de Cássia Vieira Archângelo[1], Fabíola Campos Moreira Soares[2], Maria Cláudia Tessari Ferreira[2], Renata Leme Maia[2]

[1] PhD in Health Sciences, Professors of Obstetrics and Gynecology, Health Sciences School, Universidade do Vale do Sapucaí (UNIVAS), Pouso Alegre, MG, Brazil
[2] MD, Resident Physicians at Department of Gynecology and Obstetrics, Hospital das Clínicas Samuel Libânio, UNIVAS, Pouso Alegre, MG, Brazil

Study conducted at Hospital das Clínicas Samuel Libânio – UNIVAS, Pouso Alegre, RS, Brazil

Correspondence to: Lyliana Coutinho Resende Barbosa – Rua Comendador José Garcia, 777 – CEP: 37550-000 – Pouso Alegre – MG, Brazil – magibarbosa@gmail.com

Introduction

Immature teratoma (IMT) is a tumor composed of tissues from three germ layers (ectoderm, mesoderm, and endoderm), with immature or embryonic structures. This rare tumor comprises less than 1% of ovarian tumors and is considered the second most common germ cell tumor[1].

IMT accounts for 10-20% of all ovarian neoplasias in women less than 20 years of age, with peak incidence between 15 and 19 years old, and 30% of the deaths from ovarian cancer in this age group. IMT rarely occurs during menopause[2].

IMT may present as a calcified pelvic mass, abnormal uterine bleeding, or pelvic pain. The most common sites of dissemination are the peritoneum and the retroperitoneal lymph nodes. Hematogenous spread to lungs, liver, or brain is unusual. They present elevated levels of alpha-fetoprotein in 50% of cases[3].

These tumors are histologically graded (grades 1 to 3) based on the amount and degree of neuroepithelial cell component immaturity. Older patients tend to have lower-grade tumors than younger patients[4]. Immature teratomas are rarely found bilaterally, while it is common to find benign teratomas in the contralateral ovary[1].

Peritoneal implants may be present at the time of surgical procedure, and the prognosis is strongly related to the histological grade of the tumor and implant (82% survival for patients with grade 1 lesions, 63% for grade 2 lesions, and 30% for grade 3 lesions)[5].

A surgical approach is indicated for diagnosis, treatment, and staging (even if used for other ovarian tumors). Patients with completely resected tumors have approximately 94% chance of survival at five years, while patients with partial resection have a survival expectation of less than 50%. Because bilateralism is rare in this type of tumor, the surgery of choice consists of unilateral salpingo-oophorectomy with collection of samples from peritoneal implants[6].

Radiotherapy does not appear to improve the prognosis of patients. There is no indication of therapy besides surgery for tumors limited to one ovary (grade 1), except in cases of capsular rupture or ascites. In tumors of grade 2 or 3, or with bilateral implants or recurrences, adjuvant chemotherapy should be indicated in a regimen of vincristine, actinomycin and cyclophosphamide (VAC), or bleomycin, etoposide and cisplatin[7,8].

Some studies advocate the use of alternative regimens with paclitaxel-carboplatin or docetaxel-carboplatin in order to prevent reproductive toxicity in patients undergoing conservative surgery[9].

Early diagnosis associated with immediate therapy and close follow-up are essential for long-term favorable outcomes[10]. Patients undergoing surgery with preservation of the uterus and of one ovary have normal reproductive function[11,12]. The motivation for our case report is due to the rarity of bilateral immature teratomas, as well as the fact that the patient's age is below the average for the occurrence of these tumors.

Case report

A.V.D.O, 12 years old, admitted to the Gynecologic Oncology Service at Hospital das Clínicas Samuel Libânio – Universidade Vale do Sapucaí, with abnormal uterine bleeding for two months, associated with the presence of a pelvic mass. The patient had menarche at age 11 with irregular cycles, first sexual intercourse six months prior to admission, contraception with male condoms.

Physical examination revealed that the patient was in good general state; ruddy; with an abdominopelvic mass, extending to four centimeters below the costal margin, mobile, and of solid-cystic consistency; hymenal membrane ruptured; slight vaginal bleeding; centralized cervix; circular external orifice; negative Schiller test, colposcopically normal. Gynecological examination revealed cervix of gynecologic consistency, and normal size uterus compressed to the right by the mass. Attachments not delimited.

Normal preoperative tests were performed. An abdominal computed tomography revealed a complex mass in the pelvis, extending to mesogastrium; mild bilateral hydronephrosis; and presence of free fluid in the pelvis (Figure 1).

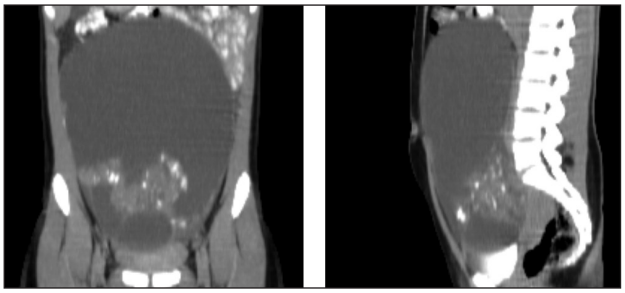

Figure 1 – Computed tomography of the abdomen showing a large complex abdominopelvic mass of probable ovarian etiology.

The patient underwent laparotomy, with collection of ascitic fluid for oncologic cytology. A complex cyst was found in the right ovary, weighing 680 g, multiseptated, with areas of capsular rupture. A right salpingo-oophorectomy was performed, and the material was sent for frozen section examination, diagnosed malignant. The left ovary showed increased volume with cystic areas (Figure 2).

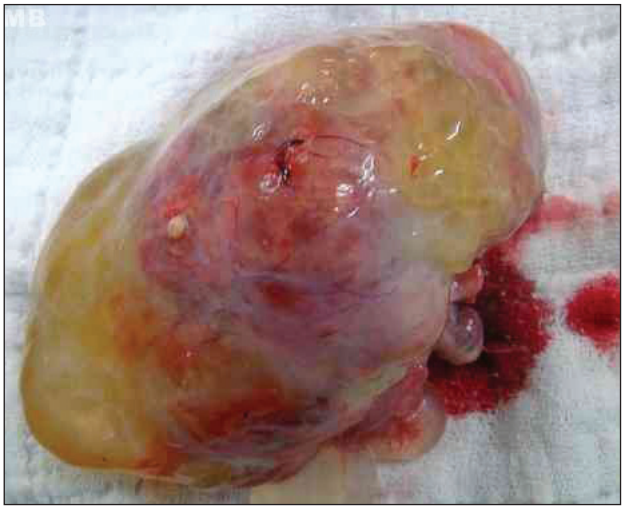

Figure 2 – Immature ovarian teratoma: macroscopic aspect.

After the family's consent, a biopsy of the left ovary was performed, with frozen section examination, which was also positive for malignancy, followed by left salpingo-oophorectomy, omentectomy, and periaortic and bilateral pelvic lymphadenectomy.

The patient had no complications in the postoperative period and was discharged in three days. She returned for removal of stitches, without incident.

The pathological report revealed a grade 3 immature teratoma; lymph nodes and omentum free of neoplastic involvement (Figure 3); ascitic fluid positive for malignant neoplastic cells (FIGO stage 1C G3).

The patient was referred to the Clinical Oncology Department for adjuvant chemotherapy and received six cycles of vincristine/actinomycin/cyclophosphamide (VAC). Currently, she is being followed-up every six months without evidence of disease.

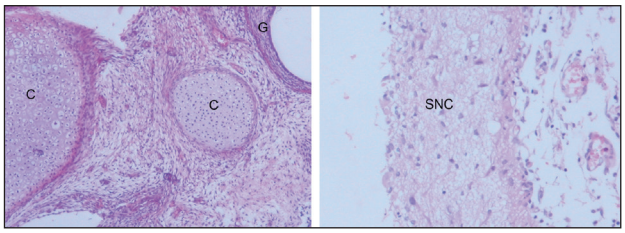

Figure 3 – Photomicrographs of immature ovarian teratoma. On the left: an area of cartilage (C) and glandular tissue cystically dilated (G), 150x. On the right: portions of central nervous system tissue, 600x.

Discussion

Bilateral immature teratoma is a rare condition, accounting for 10% of cases[3]. Bilateral tumors are most often associated with advanced staging, having a five-year survival rate of 80.7%, compared with a survival rate of 93.6% for unilateral tumors[13].

The degree of cell immaturity (grade 3) is another adverse prognostic factor, with high rate of reincidence[14]. These factors justify the radical approach taken, to the detriment of the patient's reproductive future. Some authors advocate conservative treatment in germ cell tumors grades 1 and 2[15]. The tumor marker most commonly related to immature teratoma is alpha-fetoprotein[3]. Diagnosis of immature ovarian teratoma by tumor markers appears to be more sensitive when combined with detection of Ca125, Ca153, and alpha-fetoprotein[16].

Imaging diagnosis of immature teratoma appear similar to mature teratoma due to its cystic appearance with fat content. One way to distinguish them would be the presence of contrast on computed tomography or magnetic resonance imaging[17].

The literature on immature teratoma, particularly bilateral, is limited. There are few cases reported in retrospective descriptions of isolated cases or small series. The importance of timely diagnosis in cases of pelvic masses in the adolescent patient must be emphasized, in order to provide early and adequate treatment, thus causing the least possible impact on the reproductive future of these young women.

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