

# Dysgerminoma - A Case Presentation

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*Dysgerminomas are a type of ovarian tumour which are developed from the germinal tissue and have a frequency of approximately 2% of all ovarian cancers. We report a case of a 40 years old female, which was admitted with abdominal pain and pollakiuria installed approximately 2 months ago. The particularity of the case lies in the late onset of the disease, compared to epidemiologic data, as well as in the immunohistochemical reactions, especially the negative PLAP reaction and positive CD30 reaction.*

**Keywords:** Ovarian Tumour; Dysgerminoma; Immunohistochemistry

From the intrauterine life, the ovary is made up of three histological types of tissue: epithelium, germinal tissue, and sex cords. The three major ovarian tumours are represented by epithelial tumours, which are the most frequent (90-95%), the other 5-10% being represented by tumours of the sex cords and, less often, by germ cell tumours [1].

The most common germ cell tumour is the dysgerminoma, which has a frequency of approximately 2% of all ovarian cancers, with an incidence peak in adolescents and young adults [2, 3].

## Experimental part

40-year-old patient NM presented to the County Clinical Emergency Hospital of Constanta on 09.09.2014 at 16:47, complaining of pelvi-abdominal pain and pollakiuria for about two months. Following medical history and clinical examination, the decision to admit the patient on the Obstetrics-Gynecology department II with the diagnosis of pelvi-abdominal mass was made.

## Clinical examination

From the patient's medical history we note that she is a heavy smoker and that she had one natural delivery and four elective curettages.

Upon abdominal palpation, a mass of approximately 20/20cm located in the right iliac fossa and the subumbilical region, which is painful with palpation and mobilization was detected. The hypogastrium and the left iliac fossa are normal. The mass is also detectable through digital vaginal examination and speculum examination.

## Laboratory findings

In what regards laboratory findings, the following is noted: normal complete blood count and urinalysis and modified cancer antigen 125 (CA 125): 100.4U/MI (reference range under 35 U/<MI).

The ECG shows a right bundle branch block, for which a cardiology consult is requested, which recommends periodic cardiological assessment and monitoring of vital

functions, particularly blood pressure levels and heart rate. Thoracic X-ray does not show any pulmonary lesions.

## Transvaginal ultrasound

Ultrasound shows a 20/20cm septated mass replacing the right ovary, with colour Doppler hypervascularization. The uterus has a 7/4cm size, with a homogenous structure and a thin endometrial line of approximately 8 mm. The left ovary has 3/2 size and a normal ultrasound appearance. There is no liquid within the posterior vaginal pouch, Douglas.

## Surgical intervention

On 11.09.2014 an emergency surgical intervention for acute surgical abdomen is decided upon. Upon opening of the peritoneal cavity, a pearly white 20/18 cm tumour mass with a bosselated surface and an intact capsule, belonging to the right ovary and mimicking the aspect of a uterine fibroma can be observed. The right fallopian tube, of normal macroscopic appearance, lines the mass. The uterus and left ovary and fallopian tube have a normal macroscopic appearance. A right anexectomy is performed. During the intervention, the specimen is sent to extemporaneous examination, which could not be performed, due to the fact that hospital device was malfunctioning at that moment. The specimen was subjected to paraffin test.

## Postoperative evolution

During hospitalization, the patient's postoperative was favourable under antibiotic, anticoagulant, painkillers, and prokinetic treatment. The patient was discharged on the fourth post-op day in good general condition, afebrile, soft, non-tender abdomen, clean surgical wound, normal micturition, present bowel movements and no vaginal bleeding.

## Histopathology examination

### Gross examination

The laboratory received a 1000g right anexectomy specimen, composed of an ovary with a 16/13/8cm size, with an external surface of bosselated aspect, white-pink

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in colour, presenting translucent areas. Cross-section: multinodular aspect with sizes varying between 0.5 and 5 cm, white-greyish in colour, separated by thin white bands, with areas of gelatinous aspect, in which areas of necrosis can be detected.

#### Materials and method

The specimen was fixed in formalin 10% for 24 h; cold ischemic time: 2 h. Tissues sections were taken and processed in paraffin: automated processing (Diapath platform); 5 micron sections were performed and conventional colouring techniques using usual kits (haematoxylin and eosin, Diapath) and special kits (PAS, Merck, Alcian blue 2,5 ph Diapath). Subsequently, the case was examined from an immunohistochemical point of view.

#### Microscopic

Microscopic examination: tumoral right ovary with the disappearance of normal histological structure, which is replaced by a neoplastic proliferation of cuboidal cells with large nucleolated nuclei, vesicular or dark, opaque chromatin, abundant clear or eosinophilic/granular/amphophilic cytoplasm, with variable disposition: solid, glandular, trabecular; the tumoral stroma is fibrous connective tissue with myxoid areas, containing an inflammatory plasmacytic and lymphohistiocytic infiltrate, with focal formation of lymphoid aggregates. Unicellular and ischemic necrosis is present. Neural and lymphovascular invasion not detectable. Rare atypical mitosis are present. The ovarian capsule presents with tumour invasion, but it is not surpassed. The fallopian tube is infiltrated with tumour cells.

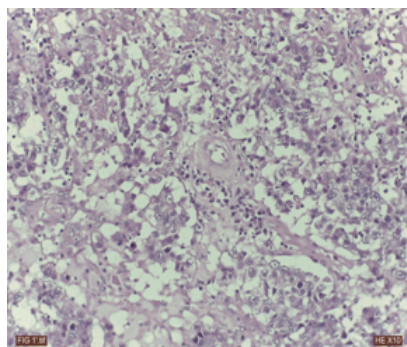


Fig. 1. Haematoxylin-Eosin 10x magnification - Tumour with cells represented by islets of large cells, with clear cytoplasm, in a stroma with an intense lymphoplasmacytic reaction

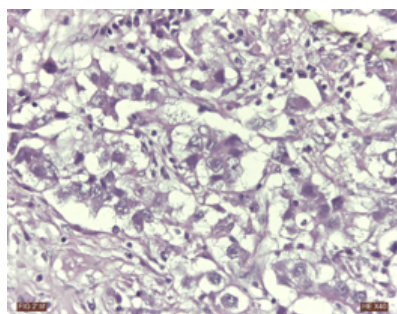


Fig. 2. Haematoxylin-Eosin 40x magnification - Tumour with cells represented by islets of large cells, with clear cytoplasm, in a stroma with an intense lymphoplasmacytic reaction.

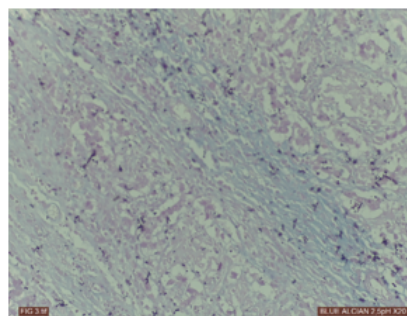


Fig. 3. Blue-Alcian staining, 20 x magnification- weak focal positive reactions in the tumoral stroma

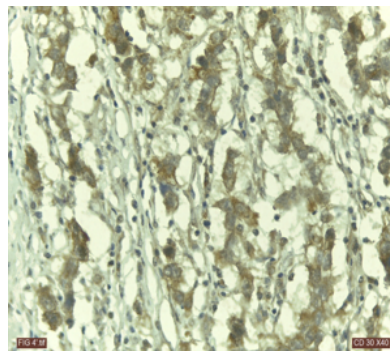


Fig. 4. CD30 40x magnification- Moderate positive perinuclear cytoplasm reaction. Internal positive control in peritumoral inflammatory cells.

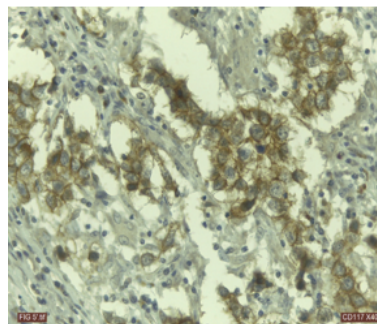


Fig. 5. CD117 40x magnification. Moderate positive membrane complete reaction - focal incomplete. Positive internal control in peritumoral inflammatory cells

The preliminary conclusion of the histopathology examination was that of ovarian tumour, most probably a dysgerminoma.

Immunohistochemical examination was performed through the Polymer method, with a HRP detective system, on a semi-automated Biocare platform, with the following antibodies (Biocare): AE1/3 (clone AE1/3), Vimentin (clone V9), CK7 (clone OV-TL 12/30), CK20 (clone KS20.8), S100 (clone 15E2E2), EMA (clone E29), CEA (clone COL-1), Ki67 (clone SP6), P53 (clone EP9), CD117 (clone EP10), CD30 (clone KI-1), CD99 (clone EP8), CALRETININ (N/A), PLAP (clone SP15).

#### Results and discussions

The tumour was classified as a CD30 positive, PLAP negative dysgerminoma, with a positive aberrant reaction to CD 117, with a low mitotic index, p53, WILD type.

After receiving the histopathology result, the patient was taken into oncologic care with the diagnosis of ovarian neoplasm -embryonal carcinoma G1 pT1NxMx stage and underwent four chemotherapy cycles with Bleomycin, Etoposide and Cisplatin. On 07.04.2015, she was admitted to the Medical Oncology Department for reevaluation. During hospitalization, the patient performed a toraco-abdominal-pelvic CT scan, which a normal result. Discharge recommendation was to perform periodic consults with the treating gynaecologist. We must note that the patient refused radical surgical intervention or anexectomy of the controlateral ovary.

Currently, four years after the right anexectomy, the patient underwent another CT scan which shows no signs of relapse.

Dysgerminoma, the ovarian equivalent of the testicular seminoma, is a rare tumour, representing 1-2% of all malignant ovarian tumours [4]. It generally affects young women, most cases being diagnosed in the second and third decade of life and it has a very good prognosis (95% 5-year survival rate), even in advanced stages [5, 6].

Standard treatment is represented by surgical resection, followed by platinum salts chemotherapy and, in more advanced stages, adjuvant radiotherapy [7]. In our case, our patient refused resection of the controlateral ovary and is currently in perfect health four years after the initial diagnosis, with no signs of local or systemic relapse, even



**Table 1**  
LIST OF ANTIBODIES AND RESULTS

Antibody	Result
AE1/3	+F<10%
VIM	-
CK7	-
CK20	-
S100	-
EMA	-
CEA	-
KI67	+ / ++ nc 5%
P53	+ nc 50%
CD117	++ / +++ cy+mb100%
CD30	++ / +++ cy60%
CD99	-
Calretinin	-
PLAP	-

+ weak positive; ++ moderate positive; +++ intense positive;  
- negative; cy=cytoplasmatic; mb=membrane; nc=nuclear

though literature on the matter notes the recurrence of dysgerminoma on the remaining ovary in 5-10% of cases in the two years following surgical intervention. Other relapse sites are represented by the peritoneal cavity or mediastinal and paraaortic lymph nodes [8]. Out of all germ cell tumours, dysgerminoma has the best prognosis, due to the fact that it is chemotherapy sensitive even in advanced stages. Even in the case of relapse, the prognosis remains favourable, most patients showing a good response to chemotherapy, radiotherapy or the combined use of chemotherapy and surgery [7].

Our case was pretty typical in what regards conventional examination, but it did present unusual reactions at the immunohistochemical examination, represented by:

Weak ae1/3 positive reaction (which outlines the possibility for the tumour to differentiate on an epithelial line) [9, 10].

Negative PLAP reaction (registered in 50% of testicular seminoma cases) [10-12].

Unexpectedly wide positive CD30 reaction (rarely observed in testicular seminoma cases, and, according to literature data, only rarely in seminoma cells. However, this reaction is reported in almost all cases of embryonal carcinoma and in almost 25% cases of yolk sac tumours [13-15] -this is in accordance with Suster et al.'s conclusion that the significance of CD30 positive reaction must not be restricted to embryonal carcinoma, but that it can be extended to yolk sac tumours and seminomas and dysgerminomas, corresponding to the close histogenetic relationship that exists between these tumour types).

## Conclusions

The particularity of the case lies in the late onset of the disease, compared to epidemiologic data, as well as in the immunohistochemical reactions, especially the negative PLAP reaction and positive CD30 reaction.

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Manuscript received: 28.10.2018