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DECIPHERING THE ENIGMA OF ADOLESCENT DYSGERMINOMA: A PSEUDO-MEIGS' SYNDROME PRESENTATION

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ABSTRACT Dysgerminoma, a rare malignant germ cell tumor of the ovary, predominantly affects adolescents and young adults, with an average age of diagnosis around 20 years. This case report delves into a unique and challenging presentation of a 14-year-old female who initially complained of breathing difficulties, palpitations, fever, and vomiting. Her clinical and radiological findings led to the diagnosis of Pseudo-Meigs' syndrome, a rare paraneoplastic phenomenon. This report comprehensively describes the patient's clinical presentation, diagnostic workup, surgical intervention, and post-operative management. Our case underscores the importance of considering dysgerminoma in adolescents presenting with unexplained pleural effusion and ovarian masses and highlights the need for early diagnosis and comprehensive treatment to ensure a favorable prognosis.

KEYWORDS : Adolescent Dysgerminoma, germ cell tumor, Pseudo-Meigs' syndrome, diagnostic challenges, surgical management

INTRODUCTION

Dysgerminoma, accounting for approximately 1-3% of all ovarian malignancies, is an exceedingly rare ovarian tumor primarily affecting adolescents and young adults. The average age of diagnosis for dysgerminoma is around 20 years, making its presentation in a 14-year-old female particularly unusual. Typically characterized by abdominal pain, abdominal distension, and occasional vague systemic symptoms, dysgerminoma can occasionally present with atypical features, as highlighted in this case.[1-5]

This report details the clinical journey of a young patient who, despite her age, presented with pleural effusion, ultimately leading to the diagnosis of Pseudo-Meigs' syndrome, a paraneoplastic phenomenon rarely associated with this tumor. We provide a comprehensive account of her clinical presentation, diagnostic workup, surgical intervention, and post-operative management, emphasizing the importance of early detection and holistic care in cases of dysgerminoma, especially when accompanied by Pseudo-Meigs' syndrome. This case serves as a reminder that timely diagnosis and multidisciplinary management are crucial for achieving a favorable outcome in such complex cases.

Case Presentation

A 14-year-old female presented in the pediatric OPD with two-days history of difficulty in breathing, palpitations, and fever, which had sudden onset with chills and rigors. She also reported one episode of vomiting containing food particles. Her past medical history was unremarkable, and her menstrual history was normal. On per abdomen examination, a firm and mobile mass of 28 weeks size, with smooth margins with upper margin palpable, and mass merging with pelvis. Initial investigations revealed pleural effusion, ascites, and a large solid mass with cystic areas in the lower abdomen, arising in relation to the right adnexa. The right ovary was not separately visualized, while the left ovary appeared normal.

Contrast-enhanced computed tomography (CECT) of the abdomen and thorax showed a well-defined heterogeneously enhancing solid mass lesion in the lower abdomen and pelvis, with a strong possibility of a solid right ovarian neoplastic etiology. There was no separate visualization of the right ovary, moderate ascites, and a gross right pleural effusion. The thoracic CECT demonstrated massive right pleural effusion, complete collapse consolidation of the right lung field, mediastinal shift towards the right, left-sided pleural effusion, and ascites causing mass effect on the liver with a shift towards the left. An ill-defined mass was noted in the right upper quadrant subhepatic region. Pleural tap was done multiple times for the pleural effusion.

Microscopic examination of pleural fluid showed elevated total leukocyte count (TLC) of 300 cells/mm³, with predominantly lymphocytes (80%) and neutrophils (15%). Pleural fluid adenosine deaminase (ADA) was significantly elevated at 54.6 IU/L. Serum lactate dehydrogenase (LDH) was 9384 U/L, while LDH in the pleural fluid was 10218 U/L. Total protein was 5.8 g/dL, with an albumin-to-globulin ratio (A/G ratio) of 1.15, indicating a transudative pleural effusion.Other tumor markers like alpha-fetoprotein, β-hCG,CA-125 were within normal range.

Based on the clinical presentation and radiological findings, a diagnosis of malignant germ cell tumor with Pseudo-Meigs' syndrome was suspected. The patient was planned for exploratory laparotomy, and during pre-anaesthesia checkup, patient was advised Pigtail insertion for the Pleural effusion and then the patient underwent exploratory laparotomy which included right salpingoophorectomy, infracolic omentectomy, and peritoneal biopsies. The ovarian mass, which was found to be solid with areas of necrosis and hemorrhage, was removed intact, ensuring complete hemostasis. The pigtail catheter was kept insitu in the chest to manage the Pleural effusion which was removed after 5 days of surgery as patient improved significantly after surgery.

On follow up the histopathology report was suggestive of dysgerminoma (pT1NxMx) and patient was attached to radiotherapy department for follow up. Serial serum beta hcg and LDH monitoring was done. Patient had uneventful post operative and follow up period.

DISCUSSION

The presented case adds a unique dimension to the understanding of dysgerminoma, particularly in adolescents, where it is exceedingly rare. The patient's initial complaints of breathing difficulties, palpitations, fever, and vomiting were initially perplexing, leading to a diagnostic journey that ultimately unveiled a malignant germ cell tumor of the ovary. The hallmark of this case was the association with Pseudo-Meigs' syndrome, characterized by the triad of an ovarian tumor, pleural effusion, and ascites.[4,5]

Furthermore, the elevation of pleural fluid ADA and the transudative nature of the pleural effusion posed diagnostic challenges. The initial suspicion of tuberculosis or other infectious etiologies was ruled out, emphasizing the importance of considering unusual presentations of ovarian tumors in adolescents. The comprehensive surgical staging, including right salpingoophorectomy, infracolic omentectomy, and peritoneal biopsies, provided crucial insights into the extent of disease and guided further management.[1,5,6]

This case lays emphasis on the importance of prompt diagnosis and the multidisciplinary approach required for adolescents with ovarian malignancies. Additionally, it underscores the rarity of Pseudo-Meigs' syndrome in association with dysgerminoma, prompting further investigation into the underlying mechanisms of this paraneoplastic phenomenon and its impact on treatment outcomes. The successful surgical intervention and management in this case serve as a testament

to the importance of early detection and tailored treatment strategies in achieving a favorable prognosis.[2,6]

CONCLUSION

This case highlights the importance of considering dysgerminoma in the differential diagnosis of adolescents presenting with pleural effusion and ovarian masses, especially when accompanied by Pseudo-Meigs' syndrome. Timely diagnosis, surgical intervention, and appropriate management are essential for achieving a favorable prognosis in such cases. Further research is needed to elucidate the underlying mechanisms of Pseudo-Meigs' syndrome in the context of dysgerminoma and its impact on treatment outcomes.

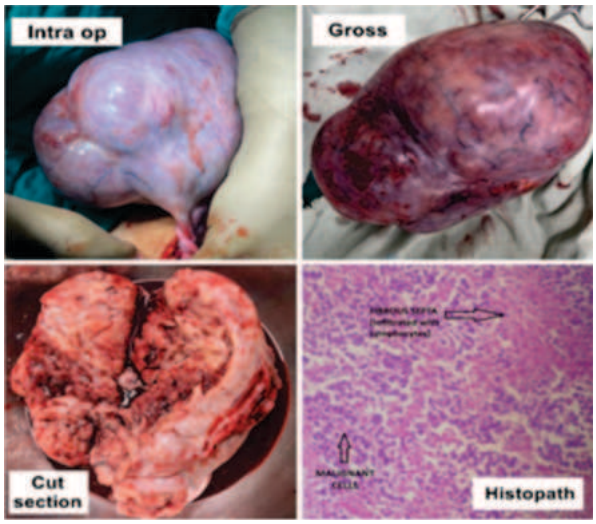

Fig. 1

Disclosure Statement

The authors declare that they have no conflict of interest.

Informed Consent

Written informed consent was obtained from the patient for the publication of de-identified patient data and image for research and educational purpose.

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