

## Case Report

# Yolk sac tumor in children and the resulting biopsychosocial and spiritual aspects

Hidayatullah\*, Irma Savitri, Lenny M. Lisal

Department of Obstetrics and Gynecology, Faculty of Medicine, Hasanuddin University, Makassar, Indonesia

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**\*Correspondence:**

Dr. Hidayatullah,

E-mail: [yayanhidayat54@gmail.com](mailto:yayanhidayat54@gmail.com)

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### ABSTRACT

Yolk sac tumor is a rare germ cell tumor in children, accounting for only about 3.5% of pediatric cancers. However, the yolk sac tumor is a malignant tumor that requires chemotherapy, but the side effects of chemotherapy can have an impact on the biopsychosocial and spiritual aspects of the child. This case report presents the negative impacts on the biopsychosocial and spiritual aspects of a child diagnosed with a yolk sac tumor. 11-year-old girl experienced symptoms of an enlarged abdomen, feeling bloated, pain, and frequent urination. The pathological examination revealed a yolk sac tumor, and the examination of ascites showed malignant cells. The patient was diagnosed with a yolk sac tumor, Stage 1C3, and was to undergo chemotherapy. She scored 15, indicating that the patient experienced anxiety due to the yolk sac tumor diagnosis and was anxious about the side effects of chemotherapy. Examination of the biological, psychological, social, and spiritual aspects in pediatric patients with a yolk sac tumor can assist in addressing the adverse effects of the diagnosis and the anxiety about chemotherapy in a more comprehensive manner.

**Keywords:** Child, Biopsychosocial and spiritual, Anxiety, Chemotherapy, Yolk sac tumor

### INTRODUCTION

Yolk sac tumor is the third most common malignant germ cell tumor of the ovary, with a prevalence of 1% of ovarian malignancies.<sup>1</sup> Yolk sac tumors are rare in childhood, accounting for only about 3.5% of childhood cancers.<sup>2</sup> The incidence of yolk sac tumors, clinical manifestations, histological distribution, and prognosis differ significantly in children and adolescents compared to adults. A diagnosis should be suspected in young girls with chronic abdominal pain and palpable lower abdominal swelling. Conservative surgery is the primary therapeutic procedure, consisting of total mass resection while preserving reproductive function.<sup>3</sup> The challenge in managing malignancies in children relates to their mental health. Child behavioural issues refer to abnormal

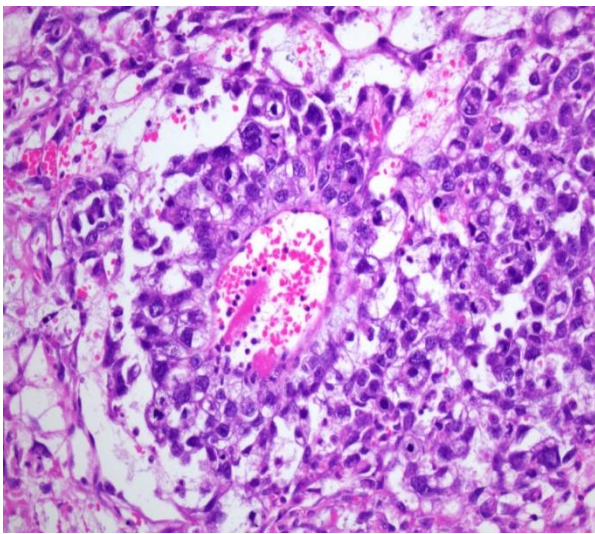
psychological behaviour where the severity and duration exceed the normal range for their age, such as aggression, disciplinary violations, and withdrawal from social interactions. Children with malignant tumors are in a unique phase of growth and development and face prolonged hospital stays and lengthy treatment cycles, quickly affecting their cognitive and behavioural development, leading to social withdrawal, poor communication, and disciplinary violations.

It is reported that over 12,000 children diagnosed and undergoing cancer treatment experience stress each year in the United States. Aspects of cancer-related stress in children include disruptions in daily functions or roles, physical effects of treatment like feeling sick from the treatments, uncertainties about the disease and its

treatment, and fears of death. These stress sources are linked to increased emotional distress, including symptoms of anxiety and depression, especially around the time of diagnosis and early in the treatment process. Thus, it is essential to understand how children with malignant diseases cope with stress after diagnosis or during treatment.<sup>4</sup> Children, as human individuals, have biological, psychological, social, and transcendental connections. The disease disrupts all dimensions of relationships that form the patient as a human individual. Therefore, a biopsychosocial-spiritual model can provide a foundation for holistically caring for the patient.<sup>5</sup> This case report discusses the biopsychosocial-spiritual aspects of a child with a yolk sac tumor.

## CASE REPORT

An 11-year-old girl came in with complaints of an enlarging abdomen that she has felt for the past month, feeling bloated, sometimes painful, and frequently urinating about five times in 1 hour, which she has felt for the past four months. She had no nausea or vomiting and occasionally had a fever. She had no comorbid history, no history of surgery, no history of medication, and no known allergies.



**Figure 1: Histopathology of yolk sac tumor.**

The patient is not experiencing cough, cold, shortness of breath, or chest pain and is not febrile. She is suspected to have a malignant cystic ovarian neoplasm. Vital signs examination: Heart Rate: 88 bpm, respiratory rate: 18/min, Temperature: 36.5°C, VAS 1/10. Head/Neck: No signs of anemia, jaundice, or cyanosis. Mouth opens to 4 cm, neck mobility >90. Thorax: Normal vesicular breathing sounds, no Rhonchi or Wheezes. Heart sounds I/II are clear and regular. Abdomen: flat, soft, with normal appearing peristalsis. Extremities: no edema or fractures. Physical examination: hemodynamically stable, a palpable mass from the epigastric region extending to the right lumbar and right inguinal area, measuring 15x10 cm, firm.

Supporting examination: laboratory results showed leukocytosis (WBC: 10,270/mm<sup>3</sup>) and anemia (Hb:10.7). Chest X-ray: No abnormalities. MSCT whole abdomen: Pelvic cavity mass extending into the intra-abdomen suspected to be a complex adnexal mass resulting in grade I bilateral hydronephrosis; ascites swab PCR not yet examined. Chest X-ray results showed no abnormalities. Histopathological examination results revealed a yolk sac tumor and malignant cells were found in the ascites examination. The patient was diagnosed with a yolk sac tumor, stage 1C3. The patient expressed sadness, frequent crying, and melancholy after the examination. She also showed reluctance to meet with friends and chose to stay at home, contemplating her illness. She occasionally questioned her parents about why this disease befell her. An anxiety assessment using the hospital anxiety and depression scale-anxiety (HADS-A) questionnaire resulted in a score of 15, indicating that the patient is experiencing severe anxiety. The child is anxious about her illness, life after being diagnosed, and the impending chemotherapy treatments. Side effects of chemotherapy, such as hair loss, nausea, and vomiting, are her primary concerns, as she fears they will disrupt her social life. The parents encourage the child to pray diligently when undergoing treatments or taking medicine and support her to engage in daily positive activities based on her interests. The parents and siblings provide significant support, often communicating and comforting her. Occasionally, family members encourage her to interact with the community around her home. The parents and the patient decided against chemotherapy due to the anxiety and distress it caused her. This decision significantly eased the child's mind and reduced her anxiety.

## DISCUSSION

The bio-psycho-social-spiritual model is routinely used in clinical settings, particularly in the care of patients with life-threatening illnesses.<sup>6</sup> This model represents the concept of palliative care. The World Health Organization (WHO) defines palliative care as an approach that improves the quality of life of patients and their families faced with life-threatening diseases by preventing and relieving pain through early identification, assessment, and treatment of pain and other physical, psycho-social, and spiritual problems.<sup>7</sup> In this case, we report the management of a child patient diagnosed with a yolk sac tumor based on biological, psychological, social, and spiritual aspects.

### *Biological aspect*

A study of all newly diagnosed ovarian tumors in children found a mean age of 10.0±3.4 years at diagnosis. The most prevalent symptoms upon presentation were acute abdominal pain (48.9%) and the presence of an abdominal mass (40.4%). Instances of precocious puberty were uncommon (6.3%).<sup>8</sup> Histological evaluations revealed germ cell tumors in 44 instances and non-germ

cell tumors in three. Nine benign teratomas (mature and immature grades 1 and 2) underwent total surgical resection and showed no recurrence during subsequent follow-up evaluations.<sup>9</sup> Research led by Mangili et al disclosed that out of 11 stage 1C3 patients, one opted out of chemotherapy and subsequently experienced disease relapse, ultimately leading to their demise. Another patient who received combined surgical and PEB treatment passed away due to acute leukemia two years post-treatment. Additionally, a patient who underwent surgery followed by PEB therapy unfortunately took their own life.<sup>10</sup> Early diagnosis of ovarian yolk sac tumors, when treated at stage I, boasts a five-year survival rate exceeding 95%. Post-surgical adjuvant chemotherapy, ideally within 3-4 cycles of PEB, can enhance outcomes and boost overall survival rates. Consequently, it is crucial to heighten awareness, particularly among parents of pediatric patients, regarding the significance of early ovarian tumor diagnosis and adherence to prescribed treatments.<sup>11</sup>

### **Psychological aspect**

In this case, a child's anxiety was assessed using the HADS-A questionnaire adapted from Podvorica et al.<sup>12</sup> The scoring categories for HADS-A are as follows: scores from 0 to 7 indicate no anxiety, scores from 8 to 10 indicate mild anxiety, scores from 11 to 14 indicate moderate anxiety, and scores from 15 to 21 indicate severe anxiety.<sup>13</sup> In this instance, the HADS-A score was 15, suggesting that the child experienced severe anxiety upon being diagnosed with a yolk sac tumor and informed about the impending chemotherapy treatment. Signs of post-traumatic stress disorder might impact approximately 75% of patients during or after treatment. Roughly 48% of children experience anxiety at least once during the follow-up period. The patient was of elementary school age and did not fully grasp the nature of her ailment or the necessary steps for treatment, leading to heightened anxiety. Additionally, the side effects of chemotherapy, such as hair loss, vomiting, and others, caused concern for her as they might interfere with her ability to socialize with peers. The child received support from her parents and siblings. Counselling and guidance were also provided to the parents and family to motivate the patient.

### **Social aspect**

The theory of social support intuitively suggests that social support is a crucial protective factor for mental health. Psychological conflicts and behavioural issues are more likely to arise when individuals cannot access external support, indicating that a child's social support is closely linked to their behavioural problems. Previous studies have shown that social support is a buffer against stress and a protective factor against children's behavioural problems.<sup>14</sup> A study reported that the level of social support for children aged 8 to 18 years with malignant tumors undergoing treatment was relatively

high in China, where affirmation and support were the primary factors influencing behavioural problems. This is because family members assist in solving issues and encourage the child to foster a sense of belonging, playing a positive role in supporting the child and helping to reduce behavioural problems. Meanwhile, overprotection from parents can lead the child to become selfish and irritable and cause other behavioural issues. Furthermore, understanding and patience can help children face their illness positively, thus preventing or reducing behavioural problems such as denial of wrongdoing, acting out, and quarrelling.

### **Spiritual aspect**

Spirituality can enhance, motivate, or supplement existing pathways within the biopsychosocial domain, such as social support, behaviour, and psychosomatics. Spirituality is seen as an independent domain potentially possessing its beneficial characteristics, like finding meaning and purpose in the experience of illness, the importance of rituals and reading sacred texts or engaging in prayer and meditation. Thus, considering various orientation levels, successful healthcare and mental health promotion should involve the dynamic interaction of the biological, psychological, social, and spiritual domains.<sup>5</sup>

The ovaries show tumor nests, which are generally arranged in a microcystic and reticular pattern between areas of necrosis and bleeding, which are quite extensive. The tumor consists of a proliferation of round, oval, atypical, highly pleomorphic nuclear cells, coarse chromatin, and prominent nucleoli with eosinophilic cytoplasm, some of which are clear. In some foci, blood vessels can be surrounded by tumor cells, which project out to form Schiller's Duval bodies. Among them, the stroma has foci of hyaline globules and quite dense clusters of inflammatory cells, lymphocytes, and neutrophils.

### **CONCLUSION**

Early screening for BRCA1/BRCA2 in children is essential for early detection of ovarian malignancy. Additionally, holistic interventions in the biological, psychological, social, and spiritual aspects, such as counselling and guidance, can reduce these negative impacts. A holistic approach is crucial in managing malignancy cases in children because, besides medical treatment, it is necessary to address the child's biopsychosocial and spiritual issues. This ensures that the disease and its treatment do not hinder their growth and development.

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