



A Rare Case Report on Therapeutic Management of Wilm's Tumour

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Authors' contributions

This work was carried out in collaboration between both authors. Author PR collected the case details and wrote the first draft of the manuscript. Author MP managed the literature searches and finalized the manuscript. Both authors read and approved the final manuscript.

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ABSTRACT

Introduction: Wilms's tumour was named after Carl Max Wilhelm Wilms, a 19th century German surgeon. Wilm's tumor is derived from primitive metanephric blastema and is a form of childhood carcinoma that begins in the kidneys (also called nephroblastoma). In infants, it is the most common form of kidney carcinoma. 9 out of 10 kidney cancers in kids is Wilms Tumor. Carcinoma can spread to other parts of the body. The incidence is around seven new cases per million children in the United States, with a peak incidence between the ages of 2 and 3 years.

Main symptoms and important clinical findings: A 11 yrs. old female child was admitted in Acharya Vinoba Bhave Rural Hospital, Wardha on 08/02/2021 with chief complaint of breathing difficulty, shortness of breath, blood in the urine, nausea and vomiting. After physical examination and investigations, doctors diagnosed it as a case of Wilm's tumor.

The main diagnoses, therapeutic interventions and outcomes: After physical examination and investigations like MRI, doctor diagnosed it as a case Wilm's tumour. Tab. Actinomycin D (Dactinomycin), tab. Vincristine (chemotherapy) were started and calcium and multivitamin supplements were given for 7 days to enhance immune function. Tab. Septran 160 mg OD and tab.

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Acenet 400 mg OD, tab. Bactrim 5mg OD was also prescribed. Patient took all treatment and outcome was good. Her signs and symptoms improved.

Conclusion: Accurate diagnosis and timely initiation of treatment speeded up recovery.

Keywords: Wilm's tumor; chemotherapy; nephrectomy; kidney.

1. INTRODUCTION

Wilms' tumour (WT) or nephroblastoma, is the most common genitourinary malignant tumour in children. The incidence in the United States is approximately 7 new cases per million children, with a peak incidence between years 2 and 3. Clinically, WT usually occurs as an asymptomatic abdominal mass, which is felt by parents and caregivers in most cases [1].

Wilms' tumour (nephroblastoma), an embryonal category of renal carcinoma, is one of the most common solid malignant neoplasms in children. This accounts for nearly 90% of all chiropody kidney tumor. The overall number of new cases of Wilms' tumour is now projected to be about 80 cases per year in the UK. In around 10 percent of patients, synchronous bilateral or multifocal tumors develop and appears to occur at a younger age. Adolescents or adults may also be diagnosed with Wilms' tumor, although this is exceedingly rare, accounting for less than 1 percent of all renal tumours [2].

A combination of surgery and chemotherapy in most patients is the standard therapeutic approach, with exception of radiotherapy in a few patients. The refining of risk stratification and the use of current chemotherapy schedules have made essential progress over the past few decades in the treatment of Wilms' tumour [2].

Excellent results have been obtained as a result of joint efforts of paediatric surgeons, pathologists, oncologists and radiologists. The Paediatric Nephrology Group and the International Society of Paediatric Oncology are the two main collaborative organizations that have researched the best treatment of Wilms' tumor. Delay in diagnosis can result in severe complications due to significant tumor size, adhesions to surrounding organs as well as tissue friability. Wilms' tumours are normally very soft and can rapidly break after gentle manipulation. As a result, intra operative problems include destruction of surrounding organs or tissues and vasculature as well as spread of infection throughout peritoneal cavity [3].

2. PATIENT SPECIFIC INFORMATION

A 11 yrs. Old female child was admitted in Acharya Vinoba Bhave Rural Hospital on 08/02/2021 with chief complaint of breathing difficulty Shortness of breath, blood in the urine, nausea and vomiting. After physical examination and investigations including MRI and biochemical tests, doctor diagnosed this case as Wilm's tumor with previous surgical history. On 29/09/2020 the child underwent surgical procedure of right radical nephrectomy. After surgery she was put on the adjuvant chemotherapy treatment.

2.1 Medical, Family and Psycho-Social History

Present case had history of of Wilm's tumor. For which she took treatment. She belonged to nuclear family and there were four members in her family. All family members were healthy except the patient. Patient looked fatigued and depressed. She maintained good relationship with doctors and nurses as well as other patients also.

2.2 Relevant Past Intervention with Outcomes

History of Wilm's tumor 6 month back for which she was hospitalized. After Blood/urine tests, radiography, ultrasound, computerized tomography scan, magnetic resonance investigation, Wilm's tumor was diagnosed.

2.3 Clinical Findings

The patient was conscious and well oriented to time, place and person. Her body built was moderate and she had maintained good personal hygiene. Weight was 29 kg. Her vital parameters were normal. Her developmental milestones were normal.

2.4 Timeline

6 month ago also, she was admitted in the hospital for the treatment of Wilm's tumor.

Chemotherapy was started and Calcium and multivitamin supplements were given.

2.5 Diagnostic Assessment

On the basis of patient history, physical examination, abdominal palpation and Ultrasonography, a moderate size tumor was observed. Magnetic Resonance Imaging (MRI) of kidney was done to differentiate between active nephrogenic rests or inactive nephrogenic rests of a Wilms tumor. To make this distinction, information from T2-weighted MRIs was used. Blood investigations were also done. WBC Count (3900/cu mm) was normal, Platelet count was less (1.57 lacs cu mm) and haemoglobin was less (9 gm%). Urine tests were also done. No challenges were reported during diagnostic evaluation. Prognosis was good.

2.6 Therapeutic Intervention

Medical management included chemotherapy with Tab. Actinomycin D (Dactinomycin) and tab. Vincristine. Calcium and multivitamin supplements were given for 7 days to enhance immune function. Other medications included Tab. Septran 160 mg OD and tab. Acenet 400 mg OD, tab. Bactrim 5 mg OD.

3. RESULTS AND OUTCOMES

Patient's condition was improved. Doctor advised follow up after 1 month and follow-up sonography and blood investigations were advised. Patient took all prescribed medications regularly and well adhered to the treatment. Dietary advise included healthy food, rich in calcium. No adverse events were reported.

4. DISCUSSION

The classic Wilm's tumour consists of three cell types, although the presence of all three types in the same case is rare [4]. Wilm's tumour is the most common renal tumour that accounting for 90% of paediatric renal neoplasms. The tumor is most common in the first five years of life, with a peak occurrence between the ages of 3 and 4 years. In children under 15 years, the annual incidence rate is 7 to 10 cases per million, accounting for 6-7 percent of all paediatric malignant tumors [5].

The prognosis for nephroblastoma is good if diagnosed earlier and the key challenge is maintaining the renal function. In Europe,

preoperative chemotherapy is followed by surgical removal, with or without postoperative radiation treatment, depending on the phase and histology of the tumour. The diagnosis of Wilms tumor is based on clinical and radiological characteristics [6].

Compared to pediatric Wilms' tumor, adult Wilms' tumor differs in many ways. Adults usually experience local pain and hematuria, and are more likely to have a palpable boggy mass [7]. Few of the related studies by Balwani et al. [8,9], Kashikar [10], Bhagvat et al. [11] and Niveditha et al. [12] were reviewed. Khatib et al. reported the beneficial effects of Ghrelin in related tumours [13,14]. Interesting related cases were reported by Jain et al. [15] and Bhagvat et al. [16].

5. CONCLUSION

Although the prognosis of Wilms tumour in adult patients is poor, it has good prognosis in children if diagnosed earlier and rationale treatment is initiated at an earlier stage.

CONSENT

As per international standard or university standard, patients' written consent will be collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval will be collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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