MEDICAL SCIENCE

Retroperitoneal mature teratoma in 3 months old male infant: A case report

Chaithanya Pulivarthi*, Revat Meshram, Amar Taksande

To Cite:
Pulivarthi C, Meshram R, Taksande A. Retroperitoneal mature teratoma in 3 months old male infant: A case report. *Medical Science* 2023; 27: e316ms3139.
doi: https://doi.org/10.54905/disssi/v27i138/e316ms3139

Authors' Affiliation:
Pediatrics, Jawaharlal Nehru Medical College, Datta Meghe Institute of Higher Education and Research, Wardha, India

***Corresponding author**
Pediatrics, Jawaharlal Nehru Medical College, Datta Meghe Institute of Higher Education and Research, Wardha,
India
Email: kchaithanya70@gmail.com

Peer-Review History
Received: 03 June 2023
Reviewed & Revised: 07/June/2023 to 22/July/2023
Accepted: 26 July 2023
Published: 01 August 2023

Peer-review Method
External peer-review was done through double-blind method.

Medical Science
pISSN 2321–7359; eISSN 2321–7367

ABSTRACT

A Mature teratoma is a tumour consisting of various tissues and is generally a benign tumor. A 3 months old male infant presented with a history of distension of the abdomen, urinary dribbling, and trouble passing the stool for one month before admission. On general examination, the abdomen was soft. Laboratory investigations were performed, and a contrast-enhanced computerized tomography (CECT) abdomen revealed a retroperitoneal mass (suspected Teratoma) with bilateral hydronephrosis. The next day the patient was operated on by performing laparotomy with the removal of the tumor. The patient also had one undescended testis and umbilical hernia, which were taken care of. The patient was kept under observation and was discharged after six days. Diet was advised, and cefixime syrup was given for one week. Follow-up was recommended after one week from the date of discharge.

Keywords: Umbilical hernia, undescended testis, laparotomy, hydronephrosis, c.e.c.t. abdomen, retroperitoneal mass, mature teratoma

1. INTRODUCTION

One prevalent kind of germ cell tumor is Teratoma (Peterson et al., 2012). The ectoderm, mesoderm, and endoderm are the three embryonic germ layers that are often present in teratomas (Tapper and Lack, 1983). Teratomas can develop in various sites, including the sacrococcygeal region, the gonadal region, the mediastinum, and the retroperitoneum (Ghritlaharey, 2016). Mature teratomas, immature teratomas, and teratomas that have undergone malignant transformation are all included in its comprehensive diagnostic. The tumor develops during embryological development due to the primordial germ cells' failed migration. Teratomas are a combination of the Greek words "teras" (monsters) and "onkoma" (swelling or tumour) (Pace et al., 2021).

Although it is the most frequent tumour discovered in babies and children, it is still relatively uncommon. One in 35,000 to 40,000 new-borns experience it. Primary retroperitoneal teratomas consist of mature tissues from at least two of the three embryonic germ cell layers (Sharma et al., 2019). A child with Teratoma may have various symptoms, depending on the tumour's size and location. Palpable swelling or a lump is the major sign.

Investigational examinations often reveal high beta human chorionic gonadotropin (HCG) and alpha-fetoprotein levels. The child could also express complaints about constipation, incontinence, dribbling of urine, etc. An ultrasound of a foetus can quickly identify a lump that could be a teratoma. A biopsy of the lump taken after delivery can further support the teratoma diagnosis.

Moreover, a complete blood count, blood chemistry, kidney function tests and liver function tests are also very useful in verifying the diagnosis of Teratoma. Contrast Enchanced Computerized Tomography (CECT) or Magnetic Resonance imaging (MRI) of the region where the tumour is situated is further sophisticated radiological tests that can be used to confirm the diagnosis of Teratoma. Another beneficial diagnostic technique for teratoma identification is an ultrasound or ultrasonography (USG). Surgery to remove the tumour is typically used to treat teratomas. For malignant types of Teratoma, radiation and chemotherapy could be necessary.

2. CASE PRESENTATION

A 3-month-old male infant presented with a history of abdominal distension, dribbling of urine and difficulty passing stools for one month before admission. For the above complaints, he was evaluated and found to have a retroperitoneal tumour. On examination the child was febrile, maintaining saturations at room air & hemodynamically stable and the vitals were stable. On auscultation of the chest, air entry was bilaterally equal to normal heart sounds. The abdomen was soft with no organomegaly, on palpation of the lower abdominal a firm mass approximately 8x6 cm extending from just above umbilicus going into the pelvis. Examination of other systems was normal. The weight of the child on admission was 5.6 kgs. CECT Abdomen revealed a retroperitoneal mass most probably a teratoma with no vascular invasion, displacing bowel towards the cephalad, anterior to aorta and bilateral hydronephrosis (HDN) was present as in (Figure 1, 2, 3).

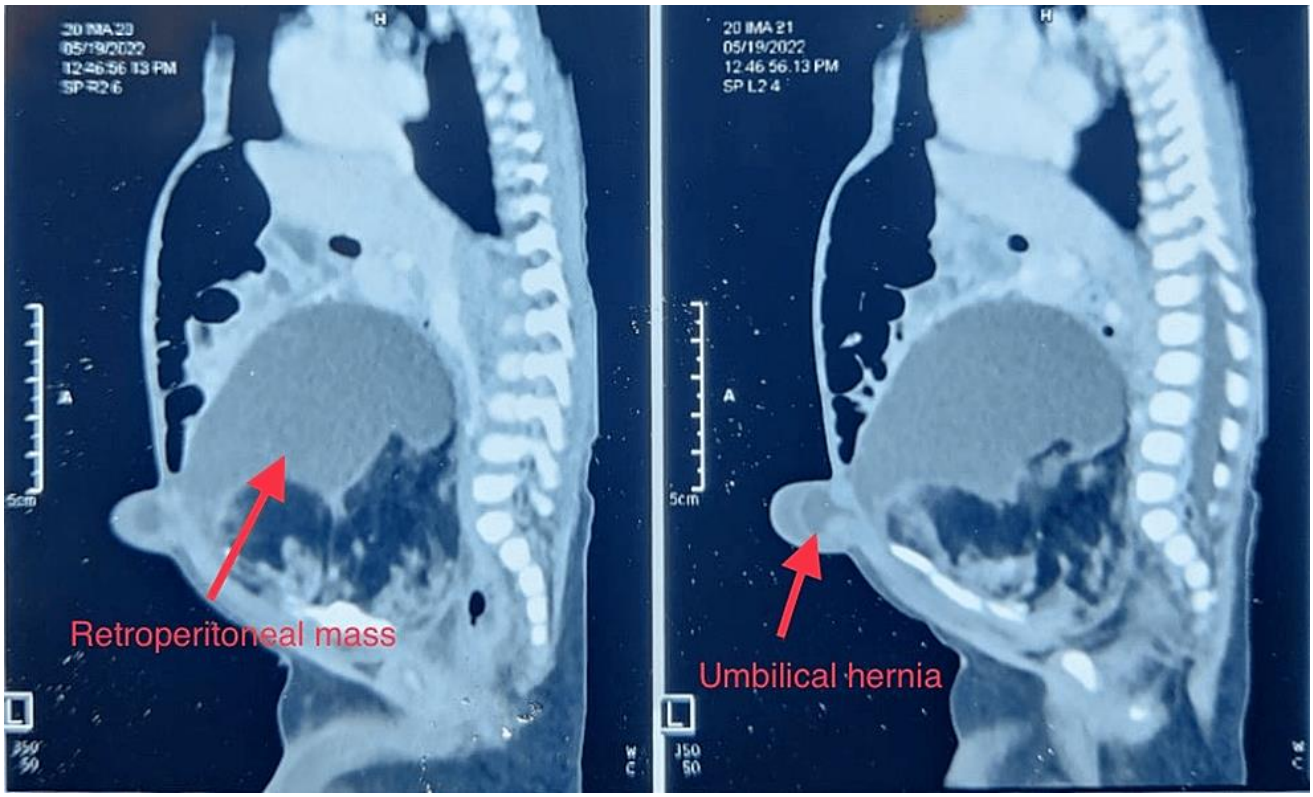

Figure 1 Contrast Enhanced Computerized Tomography (CECT) of abdomen - Saggital Plane

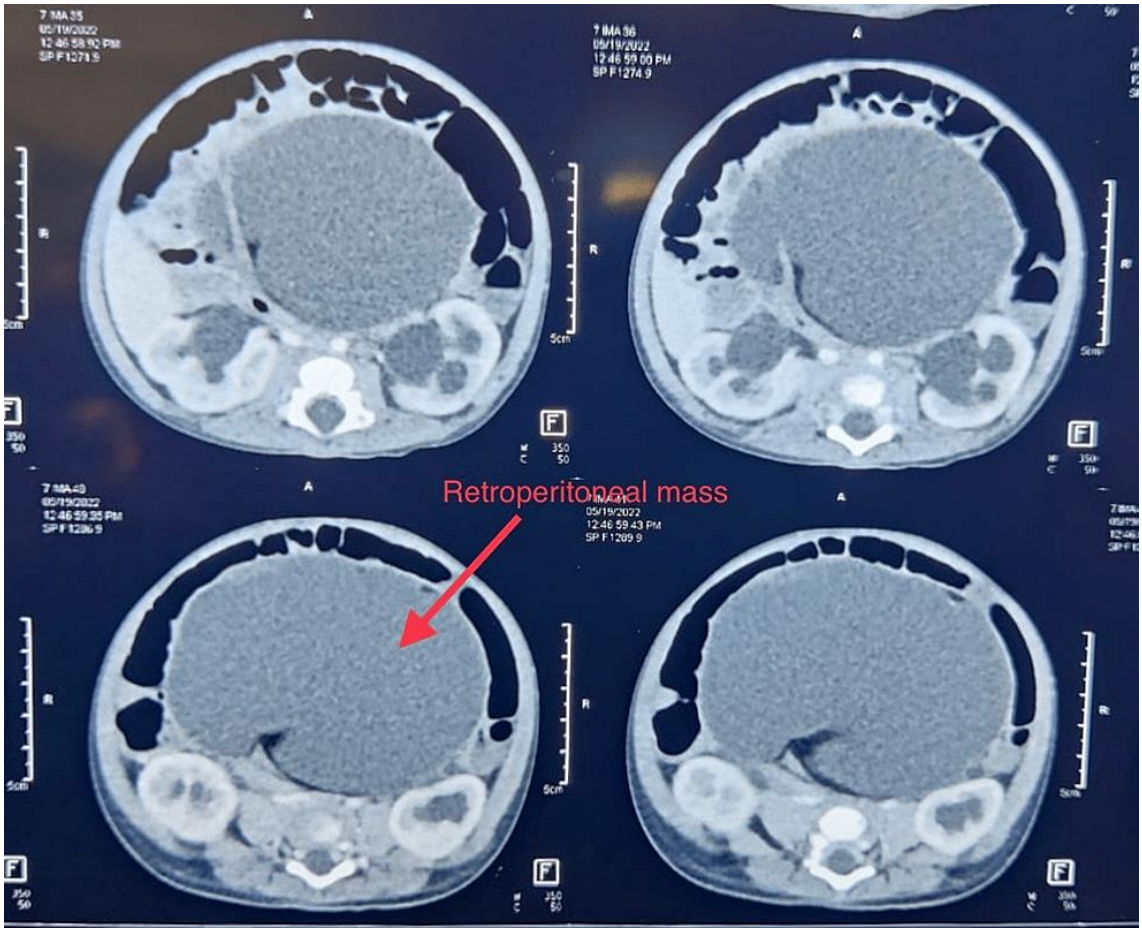

Figure 2 Contrast Enhanced Computerized Tomography (CECT) of abdomen - Axial Plane

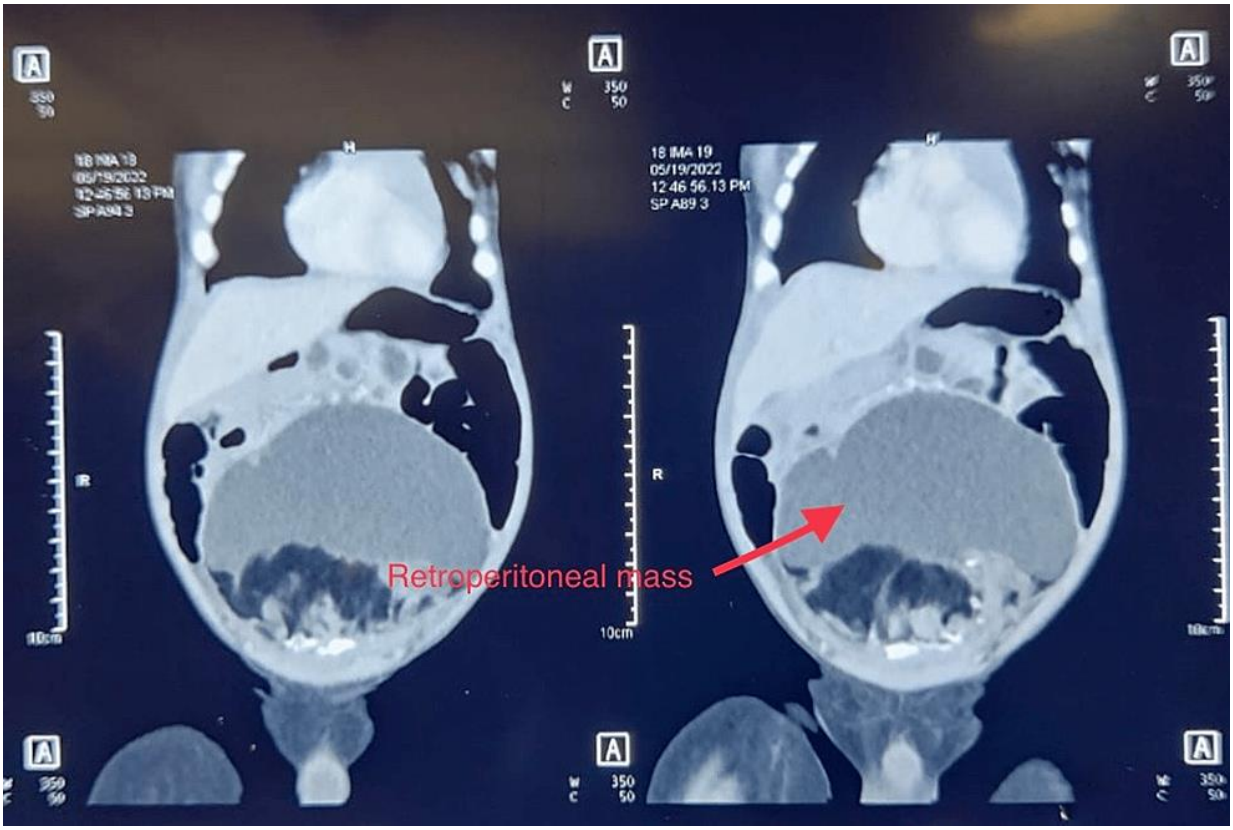

Figure 3 Contrast Enhanced Computerized Tomography (CECT) of abdomen - Coronal plane

Procedure

Laparotomy was performed and the tumour was excised. The tumour was large, approximately 8x6 cm in size, which was adherent bilaterally to the vas and ureters laterally, sigmoid colon above and bladder below, not invading any structures and with no vascular invasion. Left testis was undescended for which orchidopexy was done and umbilical hernia repair was also done.

A transverse incision was made just above the umbilicus, the incision was deepened and the peritoneum was opened as in (Figure 4). Approximately 200ml of fluid was aspirated from the mass; it was dissected carefully from colon, bladder, bilateral ureters and vas. The mass was excised in toto. Hemostasis was confirmed. Scrotal incision was made and left testis was fixed in the scrotum. Umbilical hernia was repaired with help of 3-0 prolene sutures, the wound closed in layers with 2-0 vicryl sutures and skin with 4-0 monocryl sutures. Finally dressing was done.

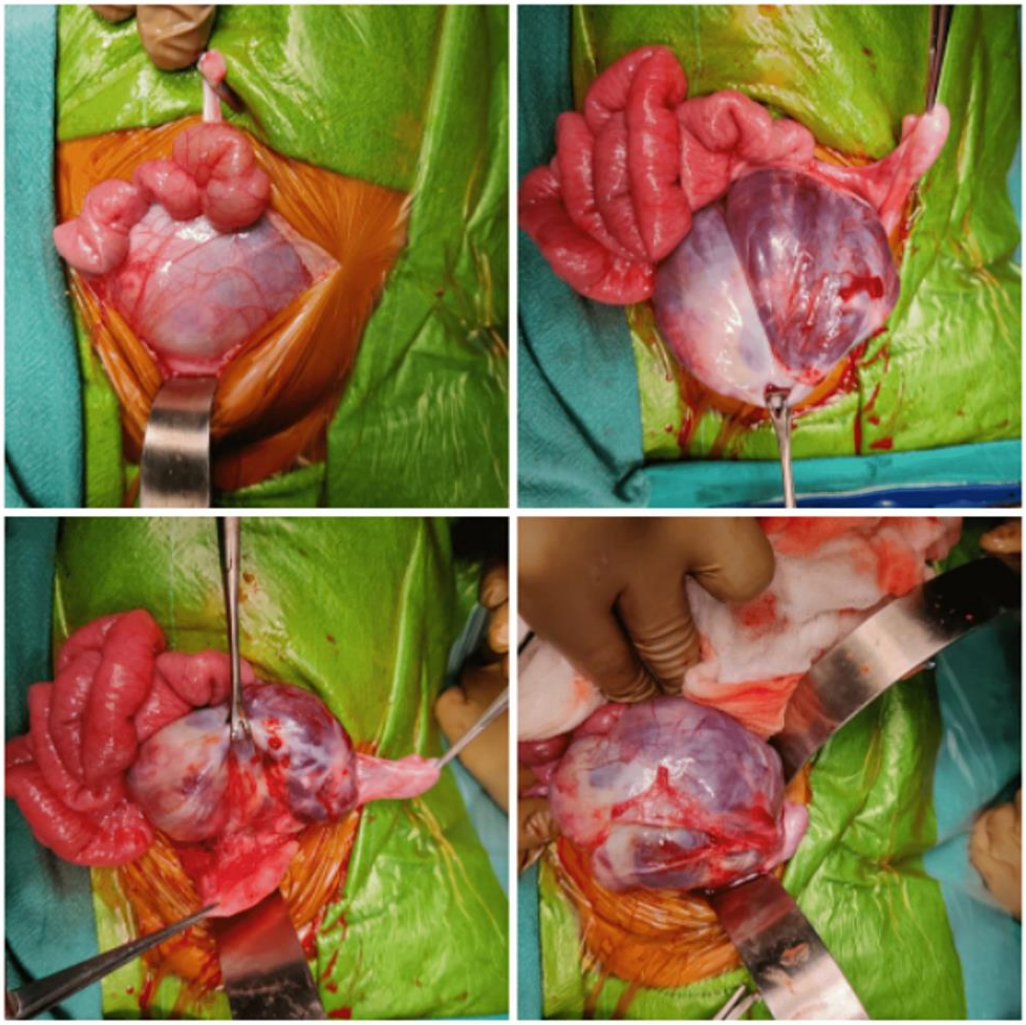

Figure 4 Images were taken during the excision of the tumour

Post-operative notes

Post-operative period was uneventful. Naso-gastric (NG) aspirates gradually subsided and were removed on 1st post-operative day (POD). The child was initiated on clear liquids orally, which he tolerated and progressively progressed to milk feeds. The baby developed abdominal fullness associated with bilious vomiting on POD 3 and was kept nil per oral, and NG was inserted. Epidural and foley catheters were removed on POD 4. As his abdomen settled down, he was started on feeds on POD 4. The baby developed abdominal fullness on POD 5, after which an upper GIT contrast study was done, which showed the good passage of contrast distally.

The baby had dribbling urine, and as USG was suggestive of a distended bladder, the baby was catheterised. He was reinitiated on feeds which he tolerated well. The child remained hemodynamically stable during the hospital stay, and operated site remained healthy. The child was discharged with the following advice and a bladder catheter in situ. Diet as advised to the patient, Syrup Ziprax (Cefixime - 5ml/50mg) 3 ml twice daily (1 hour before food or 2 hours after food) for seven days (Should be kept in the

refrigerator after reconstitution, consumed within 7-days). Crocin (paracetamol) drops (100mg/ml) 0.8 ml thrice daily for three days/SOS in case of pain.

Catheter care, avoid pull out, keep catheter always fixed over abdomen. Review consultation was advised after one week, and immediate follow-up was recommended in case of high-grade fever, vomiting, bleeding from the operative site or severe pain. The patient fully recovered without complications, and the umbilical hernia was also completely healed.

Pathology report

It was one large specimen as in (Figure 5, 6). CECT was suggestive of retroperitoneal mass teratoma. The specimen was a retroperitoneal mass with was obtained by performing laparotomy and tumour extraction. Macroscopically the excised specimen measured 8.8x7.4x5.9cm. The external surface was smooth, shiny and focally congested. Cut surface showed well encapsulated, soft to bony, pale yellow to the focal pale white lesion with few cystic and grey-brown areas. This lesion was seen occupying the entire cut surface.

Microscopically the sections showed neoplastic tissue composed of adipose tissue, islands of mature cartilage, focal glial tissue, cystic areas lined by keratinised stratified squamous epithelium, few cystic areas lined by low cuboidal epithelium, respiratory type epithelium, foci of seromucous glands, bony trabeculae with intervening marrow tissue, smooth & skeletal muscle bundles, intestinal-type epithelium and choroid plexus like tissue. Immature elements are not seen. The capsule was intact. According to the pathological report the excised retroperitoneal mass was a mature retroperitoneal teratoma.

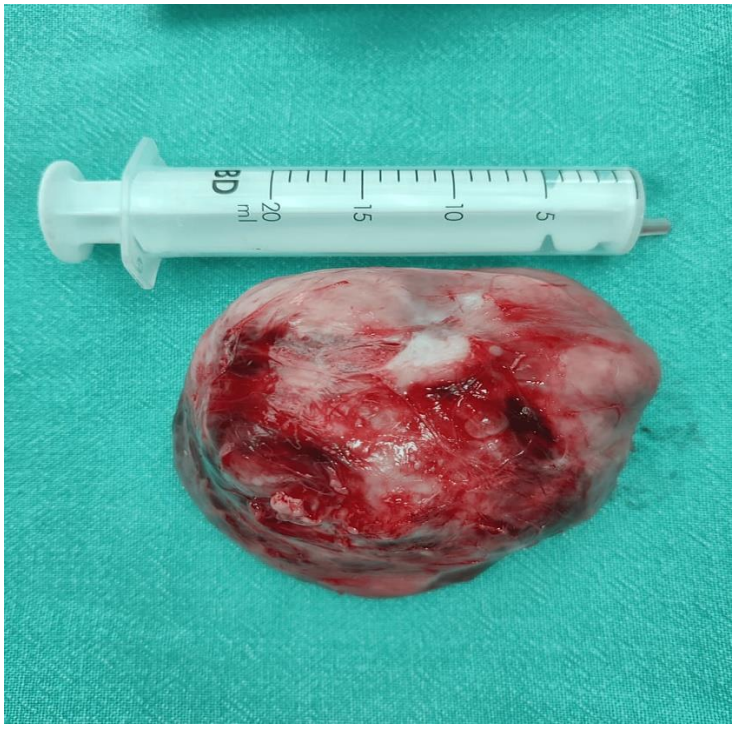

Figure 5 Mature retroperitoneal teratoma in comparison with a 20ml syringe

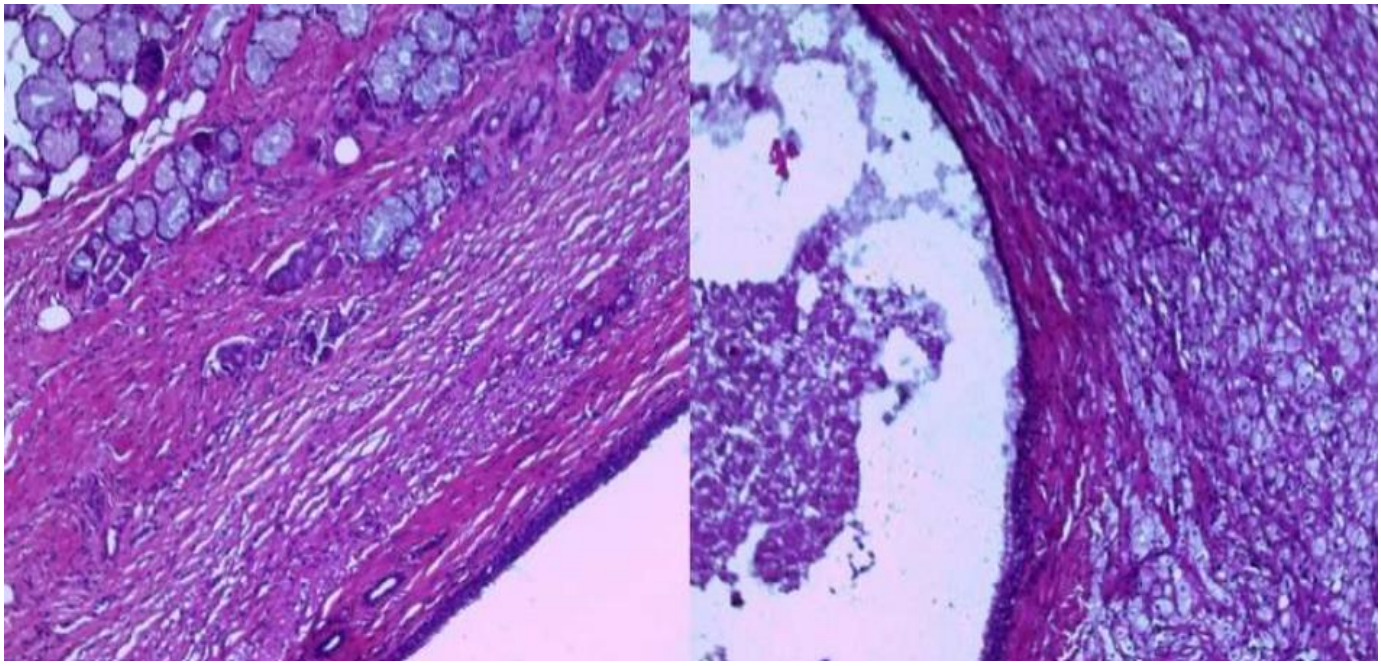

Figure 6 The histology images show teratoma with necrosis after chemotherapy

3. DISCUSSION

Teratoma is the most common type of germ cell tumour (GCT), and it consists of the three germ layers. Teratomas can be made up of tissues such as hair, muscle, bone, etc. They are formed due to the uneventful migration of primordial germ cells and can originate from any part of the body. It is rare to have a retroperitoneal teratoma (5 percent of all teratomas). Usually, within the first year of life, the diagnosis is made (Tortey et al., 1988). Teratomas are the most common congenital neoplasms (Ghritlaharey, 2016) and they are part of the non seminomatous group of germ cell tumors. Mature teratoma has two or three germ cell layers from the endoderm, mesoderm and ectoderm. Teratomas can be solid, cystic, or mixed depending on their composition (Pace et al., 2021).

An uncommon but diverse set of benign and malignant tumours that develop in the retroperitoneal space but outside the main organs in this region are known as primary retroperitoneal neoplasms. They can be cystic or solid masses, and each of these types of masses can be further categorised into neoplastic and non-neoplastic masses (Sharma et al., 2019). Symptoms appear based on the location of the Teratoma. Diagnosis can be achieved with the help of laboratory investigations and advanced imaging methods, and biopsy plays a crucial role in diagnosing.

Surgical intervention is sufficient in the case of mature teratoma, but in the case of immature teratoma, surgery with chemotherapy and radiation may be required. In this case, the three months old male patient with chief complaints of abdominal distension, dribbling of urine, and difficulty in passing stool for one month. Laboratory investigations were done and CECT of the abdomen was done, which revealed a retroperitoneal mass (Klatt and Kumar, 2004).

The patient also had bilateral hydronephrosis due to obstruction of the ureter, with an umbilical hernia and left undescended testis. The tumour was excised by performing laparotomy, the umbilical hernia was repaired with 3-0 prolene sutures, and the left testis was fixed in the scrotum. Then finally, the wound was in layers with 2-0 vicryl sutures and skin with 4-0 monocryl sutures. The dressing was applied. According to the pathological report, it was a mature retroperitoneal teratoma with neoplastic tissue. The patient was given cefixime syrup for seven days, and a diet was advised. Surgery can improve the outcome for patients with mature Teratoma.

4. CONCLUSIONS

Mature teratomas are generally benign, but a tiny percentage of mature Teratomas become malignant. Laparotomy and tumour excision was done to safely remove the tumour from the abdominal cavity. Mature teratomas show a good prognosis; surgery and follow-up remain the standard approach. Orchidopexy was performed to correct the left undescended testis, and the umbilical hernia was repaired. Diet was advised to the patient, and Syp. Ziprax (Cefixime - 5ml/50mg) for 7 days was given.

Acknowledgement
We thank the participants who were all contributed samples to the study.

Ethical approval
NA

Informed consent
Written & amp; Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

Funding
This study has not received any external funding.

Conflict of interest
The authors declare that there is no conflict of interests.

Data and materials availability
All data sets collected during this study are available upon reasonable request from the corresponding author.

REFERENCES AND NOTES

1. Ghritlaharey RK. Mature Teratoma at Left Lumbar Region in an Infant: A Case Report. J Clin Diagn Res 2016; 10:PD22–PD23. doi: 10.7860/JCDR/2016/23055.9092
2. Klatt EC, Kumar V. Robbins and Cotran Review of Pathology, 2nd edition. Saunders, Philadelphia 2004.
3. Pace S, Sacks MA, Goodman LF, Tagge EP, Radulescu A. Antenatal Diagnosis of Retroperitoneal Cystic Mass: Fetiform Teratoma or Fetus in Fetu? A Case Report. Am J Case Rep 2021; 22:e929247. doi: 10.12659/AJCR.929247
4. Peterson CM, Buckley C, Holley S, Menias CO. Teratomas: A multimodality review. Curr Probl Diagn Radiol 2012; 41:210–219. doi: 10.1067/j.cpradiol.2012.02.001
5. Sharma S, Dawson L, Mandal AK. Primary Retroperitoneal Teratoma with Predominant Neurogenic Elements Masquerading as Adrenal Tumor. Turk Patoloji Derg 2019; 35:69–73. doi: 10.5146/tjpath.2016.01365
6. Tapper D, Lack EE. Teratomas in infancy and childhood. A 54-year experience at the Children's Hospital Medical Center. Ann Surg 1983; 198:398–410. doi: 10.1097/00000658-198309000-00016
7. Tortey P, Diard F, Chateil JF, Castel JC, Brichaux JC. Retroperitoneal teratoma in children. Apropos of 2 cases. J Radiol 1988; 69:449–454.