International Journal of Life Sciences, Biotechnology and Pharma Research Vol. 13, No. 6, June 2024 Online ISSN: 2250-3137
Print ISSN: 2977-0122

DOI: 10.69605/ijlbpr_13.6.17

CASE SERIES

Comprehensive Analysis of Retroperitoneal Mass Excision: A Case Series

[1]Rijul Marwah, [2]Sudarshan Odiya, [3]Sanjay Mahajan, [4]Anil Chouhan, [5]Satish Verma, [6]Rahul Patel, [7]Aslam Patel, [8]Harpreet Singh Mehta

[1,5,6,7,8]PG Resident, [2]Associate Professor, [3]Assistant Professor, [4]Senior Resident, Department of Surgery, MGMMC & MY Hospital Indore, Madhya Pradesh, India

Corresponding Author
Rijul Marwah
PG Resident, Department of Surgery, MGMMC & MY Hospital Indore, Madhya Pradesh, India

Received date: 08 May, 2024 Acceptance date: 04 June, 2024

ABSTRACT

Background: Retroperitoneal masses present significant diagnostic and therapeutic challenges due to their often asymptomatic nature and complex anatomical location. This report details the successful surgical treatment and postoperative outcomes in patients, diagnosed with retroperitoneal masses. Patients underwent complete resection and demonstrated favorable recoveries.

Keywords: Retroperitoneal masses, surgical management, resection.

INTRODUCTION

The retroperitoneum space is posterior to peritoneal cavity and anterior to paraspinous muscles, superiorly it is bordered by diaphragm and inferiorly it has natural extension into pelvic cavity.[1] Retroperitoneal masses constitute a heterogeneous group of lesions, originating in the retroperitoneal spaces.[2] The retroperitoneum can host a wide spectrum of pathologies, including a variety of rare benign tumours and malignant neoplasms that can be either primary or metastatic lesions. Malignant tumours of the retroperitoneum occur four times more frequently than benign lesions.[3] The clinical manifestations of retroperitoneal masses are nonspecific, depending on their location and relation with the adjacent structures.[4] The main imaging methods for the evaluation of these lesions are computed tomography (CT) and magnetic resonance imaging (MRI), imaging features facilitating the differential diagnosis, the tumor staging, and the definition of the surgical strategy, as well as guiding biopsies.[2,5-7] This case report aims to provide insights into the clinical presentation, surgical approach, and postoperative outcomes of three patients treated for retroperitoneal masses, contributing to the existing body of literature.

Case Presentation 1: A 53-year-old male presented to our department complaining with vague abdominal discomfort and occasional lower back pain. Imaging studies, including abdominal CT and MRI, revealed a 22 cm heterogeneous mass located in the left retroperitoneal space, suggestive of a liposarcoma. Blood tests and tumor markers were within normal limits.The patient underwent an open surgical procedure. The mass was carefully resected with clear margins, ensuring minimal disruption to adjacent structures, including the kidney and major blood vessels. Intraoperative findings confirmed the mass was encapsulated and had not invaded surrounding organs.Histopathological examination confirmed a well-differentiated liposarcoma. Margins were clear of tumor cells.The patient had an uneventful recovery and was discharged on postoperative day 7. Follow-up at three and six months, including imaging studies, showed no evidence of recurrence.

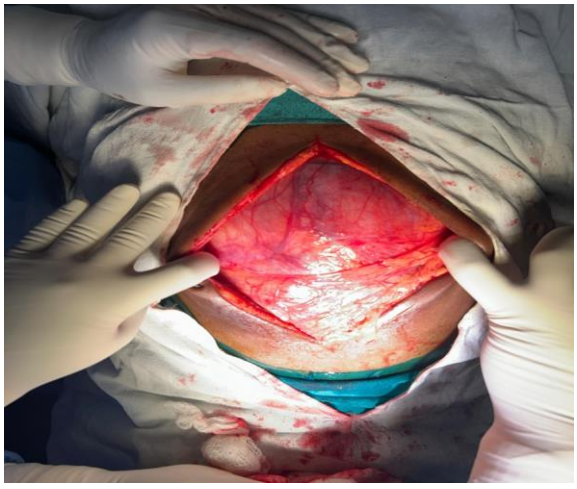
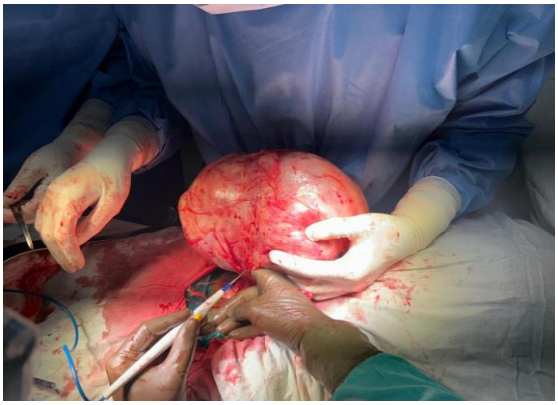


Figure 1: Intraoperative Encapsulated mass

DOI: 10.69605/ijlbpr_13.6.17



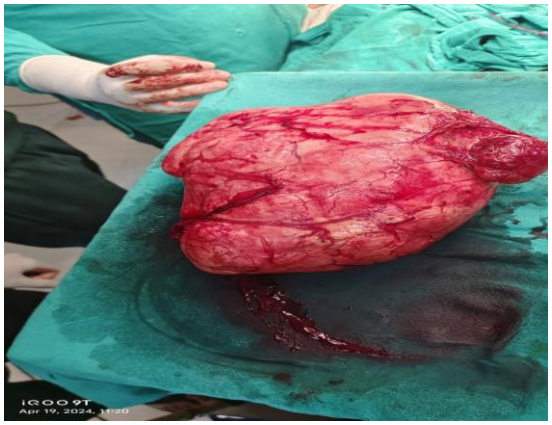


Figure 2: Resected Retroperitoneal mass

Case Presentation 2: A 60-year-old male presented with an incidental finding of a retroperitoneal mass during routine ultrasound for unrelated conditions. The abdominal CT scan revealed a 12 cm mass in the right retroperitoneal area, suspected to be a renal cell carcinoma due to its proximity to the kidney. Blood tests and tumor markers were unremarkable. An open surgical approach was employed to resect the mass. The procedure involved careful dissection to preserve renal function and avoid damage to the inferior vena cava and adjacent structures. The mass was successfully excised with negative margins. Histopathology identified the mass as a primary retroperitoneal schwannoma, a rare benign tumor originating from nerve sheath cells. The patient's postoperative period was uneventful, and he was discharged on postoperative day 5. At follow-up intervals of three and six months, there were no signs of recurrence or complications.

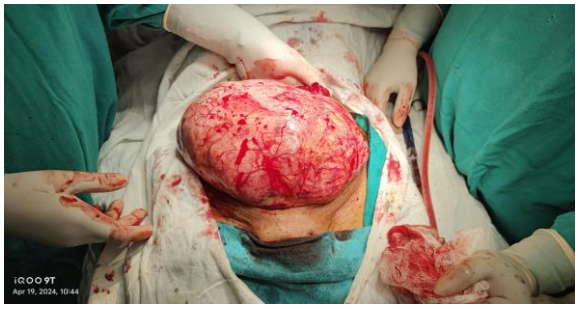


Figure 3: Intraoperative Encapsulated mass

Case Presentation 3: A 55yr old male presented to our departmant with chief complaints of lump in the abdomen since 15-20years which was insidious in onset, gradually progressive, associated with pain since 4 days. Patient was passing motion and flatus regularly. There was no history of trauma/fever/urinary complaints. There was no history of diabetes mellitus, hypertension, pulmonary tuberculosis, bronchial asthma. No previous history of surgery was found. On examination, there was a palpable mass of size 30x20cm present in the hypogastrium, non tender, hard consistency, no skin changes present. USG of abdominal and pelvis shows well defined cystic lesion extending from supraumbilical to hyposgastric region and laterally to iliac fossa present anterior to anterior abdominal wall s/o peritoneal neoplastic lesion. Evidence of large fairly defined moderate heterogenously enhancing isodense lesion with multiple specks of calcification of size 12.2x22.2x19.2 cm s of germ cell tumor, extra gastrointestinal stromal tumor. Exploratory laparotomy with excision of mass with pelvic drain placement under epidural anaesthesia was done. Intraoperatively 30x20cm encapsulated mass present compressing bilateral ureter.

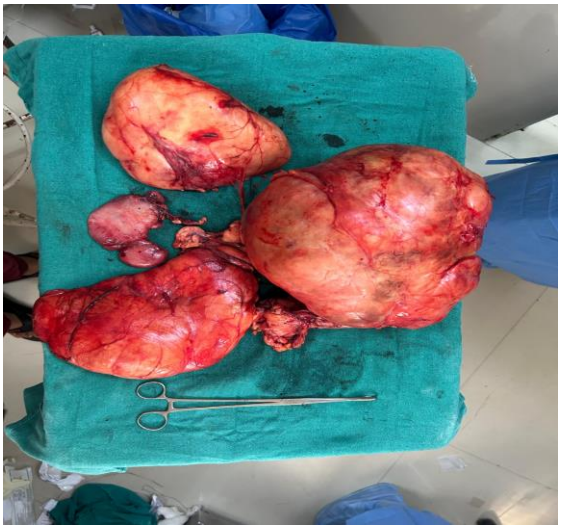


Figure 4: Intraoperative Encapsulated mass

DISCUSSION

Retroperitoneal masses are challenging for surgeons due to their inaccessible location, unpredictable clinical behavior, and lack of successful treatments. A diagnosis can be reached through the evaluation of complaints, clinical findings, imaging methods, and Trucut biopsy. The most common tumors among the malignant group are liposarcomas. These tumors generally tend to be of low and intermediate grades. In it has been reported that the following are negative prognostic factors: poorly differentiated type, grade 2 to 3 tumor, stage 2 to 3 tumor, tumor size larger than 20 cm, and a positive surgical border.[8] The well-known grading systems for sarcomas currently in use at present are those of the National Cancer Institute

DOI: 10.69605/ijlbpr_13.6.17

(NCI) and French Federation of Cancer Centers (FFCLCC). [9]

The presented cases highlight the importance of comprehensive preoperative imaging and careful surgical planning. Both patients demonstrated excellent recovery with no recurrence at six months, underscoring the importance of complete surgical resection.

Within the framework of a study evaluating 500 patients with retroperitoneal sarcoma, who were treated at the Memorial Sloan-Kettering Cancer Center, it was found that while the average life expectancy for patients who had complete resection was 103 months, this decreased to 18 months for patients who had incomplete resection or whose tumors were inoperable.[10]

In 2000, Linehan *et al.* studied 159 patients diagnosed with RTs and found that the increase in tumor size played a significant role in the increase of local recurrence and in metastasis rates.[11]

Bael P et al present a case series of three successfully resected tumors in a center at Al-Makassed Hospital in Jerusalem, Palestine, all of which primarily involved or invaded adjacent structures and needed a multidisciplinary approach to achieve R0 resection. The first patient was a 42-year-old previously healthy female with intermittent attacks of dull aching abdominal pain. Her tumor was a leiomyosarcoma that involved major vessels and other adjacent vital structures. Ultimately, she needed major highly advanced surgery necessitating the need for vascular reconstruction of the IVC, as well as R0 resection. The surgery was performed by a multidisciplinary team of highly specialized surgeons in related fields. The second case is a 75-year-old female patient with a well-differentiated liposarcoma invading the upper pole of the right kidney, necessitating a nephrectomy. Consequently, this case demanded the interdisciplinary involvement of nephrology. The third patient was a 59-year-old male with dedifferentiated liposarcoma that involved the spleen, pancreas, and splenic flexure while engulfing the left kidney and ureter. Beyond the removal of the tumor, multiorgan resection was imperative to achieve microscopic margin-free resection. This extensive local spread needed broad collaboration from the medical team and other surgical subspecialties. All surgeries went well, and their outcomes were promising. All patients had an uneventful follow-up and, to date, no recurrence. Invasive retroperitoneal sarcomas of different histological types and clinical stages represent a technical challenge. Careful preoperative investigation and an experienced, dedicated multidisciplinary team of surgeons and non-surgeons from related fields, including vascular, urologic, and hepatobiliary surgeons, are usually needed for a safe and successful R0 resection despite extensive tumor involvement in light of difficulty achieving early diagnosis.[12]

It is also essential to consider the implications of undetermined extensions of masses obscured by viscera, especially in liposarcomas. This plays a significant role in determining the surgical approach and decreasing complications.[13,14]The mainstay of treatment is surgical resection.[12]

SURGICAL CONSIDERATIONS

For retroperitoneal liposarcomas, wide excision with clear margins is crucial to prevent local recurrence, as these tumors tend to recur locally. Schwannomas, while generally benign, require careful dissection to avoid nerve damage. Both cases benefitted from a thorough preoperative assessment and meticulous surgical technique.

POSTOPERATIVE MANAGEMENT

Postoperative care included regular follow-up with imaging to monitor for recurrence, which is critical in the first few years following resection. Both patients were advised to undergo regular follow-ups every six months for the first two years, then annually.

CONCLUSION

The successful management of these three cases emphasizes the efficacy of surgical intervention for retroperitoneal masses. Continued follow-up is essential to monitor for potential recurrence. These cases add to the body of evidence supporting the surgical resection of retroperitoneal tumors, underscoring the importance of individualized patient care.

REFERENCES

1. Neville A, Herts BR. CT characteristics of primary retroperitoneal neoplasms. Critical reviews in computed tomography. 2004 Jan 1;45(4):247-70.
2. Nishino M, Hayakawa K, Minami M, et al. Primary retroperitoneal neoplasms: CT and MR imaging findings with anatomic and pathologic diagnostic clues. Radiographics. 2003;23:45–57.
3. Van Roggen JF, Hogendoorn PC. Soft tissue tumours of the retroperitoneum. Sarcoma 2000; **4**: 17–26.
4. Gâtita CE, Georgescu I, Nemes R. Difficulties in diagnosis of primitive retroperitoneal tumors. Current Health Sciences Journal. 2010;36:132–135.
5. Scali EP, Chandler TM, Heffernan EJ, et al. Primary retroperitoneal masses: what is the differential diagnosis? Abdom Imaging. 2015;40:1887–1903.
6. Hoarau N, Slim K, Da Ines D. CT and MR imaging of retroperitoneal schwannoma. DiagnInterv Imaging. 2013;94:1133–1139.
7. Brennan C, Kajal D, Khalili K, et al. Solid malignant retroperitoneal masses-a pictorial review. Insights Imaging. 2014;5:53–65.
8. Neuhaus SJ, Barry P, Clark MA, Hayes AJ, Fisher C, Thomas JM. Surgical management of primary and recurrent retroperitoneal liposarcoma. Br J Surg. 2005;**92**:246–52. doi: 10.1002/bjs.4802.
9. Eilber FC, Brennan MF, Eilber FR, Dry SM, Singer S, Kattan MW. Validation of the postoperative nomogram for 12-year sarcoma-specific

DOI: 10.69605/ijlbpr_13.6.17

mortality. Cancer. 2004;**101**:2270–5. doi: 10.1002/cncr.20570.

10. Kattan MW, Leung DH, Brennan MF. Postoperative nomogram for 12-year sarcoma-specific death. J ClinOncol. 2002;**20**:791–6. doi: 10.1200/JCO.20.3.791.
11. Linehan DC, Lewis JJ, Leung D, Brennan MF. Influence of biologic factors and anatomic site in completely resected liposarcoma. J ClinOncol. 2000;**18**:1637–43
12. Bael P, Alqtishat B, Alshawwa K. Case Report: Successful R0 resection in locally advanced retroperitoneal sarcomas. Frontiers in Surgery. 2024;11.
13. Messiou C, Moskovic E, Vanel D, Morosi C, Benchimol R, Strauss D, et al. Primary retroperitoneal soft tissue sarcoma: imaging appearances, pitfalls and diagnostic algorithm. Eur J SurgOncol. (2017) 43(7):1191–8. doi: 10. 1016/j.ejso.2016.10.032
14. Luca I, Dimitri T, Toufik B, Khoubeyb A, Sylvie B. Overview of primary adult retroperitoneal tumours.Eur J SurgOncol. (2020) 46(9):1573–9. doi: 10.1016/j.ejso.2020.04.054