

Primary resection with mesh reconstruction for abdominal wall desmoid tumors

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Abstract

Background: Desmoid tumors are rare, benign, non encapsulated, locally invasive neoplasms of fibrous origin which lack the ability to metastasize but can reoccur. Surgical resection of desmoids has been controversial approach. The study present our experience of desmoid tumors which underwent primary resection with mesh reconstruction. **Methods:** The study was conducted from June 2011 to October 2014 with 8 patients of desmoids tumor. Detailed history and thorough clinical examination was conducted. Investigations including routine blood investigations, FNAC, USG, and CT abdomen were carried out. Patients underwent primary resection with 3 cm tumor free margin with reconstruction of abdominal wall. **Results:** Majority of patients were, between 25 to 50 years. There were 6 females and 2 male. All cases were extra abdominal desmoid tumors. Tumor free margins of 3cm on frozen section were achieved in all cases. There was no recurrence of tumor. **Conclusion:** Desmoid tumors are locally invasive tumors, resection with a 3 cm tumor free margin ensures non-reoccurrence. Mesh reconstruction of the defect gives strength to abdominal wall and prevents further complications.

Keywords: Desmoid Tumor; Aggressive Fibromatoses; Surgery; Mesh reconstruction.

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INTRODUCTION

Desmoid tumors also known as aggressive fibromatoses are histologically benign myofibroblastic neoplasms that arise from fascial and musculoaponeurotic tissues. These tumors are rare, benign, non capsulated, invading the fascial planes and neurovascular structures¹. Despite their aggressive local invasiveness, desmoid tumors lack a metastatic potential². However, this local infiltration can compress the surrounding structures, and can lead to complications and even mortality.³ They have strong

tendency to recur locally after surgical resection. Desmoid tumors account for 0.03% of all neoplasms and 3% of all soft tissue tumors⁴. They occur usually between the ages of 25 and 40 years with a strong prevalence among women in the fertile age group. The most common site of predilection is the anterior abdominal wall, with an incidence of 50%.¹⁻⁵

MATERIALS AND METHODS

The study was carried out in the department of General Surgery, NIMS Medical College, Jaipur, from June 2011 to October 2014 which included 8 patients of desmoid tumor. Each patient underwent an elaborate history and clinical examination. Investigations included blood investigations, FNAC, USG, and Contrast CT. Patients underwent elective primary surgical resection with 3 cm tumor free margin confirmed on frozen section. The defect in abdominal wall was reconstructed with polypropylene mesh. Patients were followed up for a minimum period of 18 months.

RESULTS

Case no.	Age/sex	History	Site of tumor	Number and size of tumor	Treatment	Follow up upto 18 months
1	40yr/female Multipara	Abdominal lump for 5 years	Extraabdominal, in RIF	Single, 7cm x 9 cm x 6cm		
2	46yrs/female multipara	Dragging pain with Abdominal lump for 1 year	Extraabdominal, in RIF	Single, 5cm x 8cm x 7cm		
3	50yrs/male	Abdominal lump for 3 years	Extraabdominal, in LIF	Single, 6cm x 8 cm x 5cm		
4	36yrs/female Multipara	Abdominal lump for 8 years	Extraabdominal, in RIF	Single, 10cm x 14 cm x 8cm	Primary surgical resection with 3cm tumor free margin.	No Recurrence
5	45yrs/male	Painful abdominal lump for 4 years	Extraabdominal, in LIF	Single, 6cm x 11 cm x 5.5cm		
6	28yrs/female Multipara	Painful abdominal lump for 6 years	Extraabdominal, in epigastric region	Single, 9cm x 9cm x 6cm		
7	32yrs/f Multipara	Dragging pain with Abdominal lump for 10 years	Extraabdominal, in LIF	Single, 12cm x 14 cm x 10cm		
8	26yrs/female Nullipara	Painful abdominal lump for 3 years	Extraabdominal, in RIF	Single, 6cm x 6cm x 4 cm		

DISCUSSION

Desmoid tumors are benign deep fibromatoses, of musculo-aponeurotic origin with an infiltrating nature^{1,6}. Approximately, 3.7 new cases occur in one million persons every year which are often associated with female gender, FAP, estrogen therapy, and occasionally with surgical trauma^{7,8}. Average age ranged between 21 to 40 years. It has a higher incidence in multiparous women⁹. Hormonal factors have been implicated in the growth rate of desmoid tumors, with estrogen predominating over progesterone^{10,11}. Estrogen alone may also act as a growth factor for these tumors. In our series also, desmoid tumors were more common in female than in male patients. Out of 6 female, one patient was nulliparous and three were on oral contraceptive medication. Trauma especially operative trauma may contribute to the formation of desmoid tumors⁸. In the study, one patient had history of blunt trauma over abdomen and one patient had history of cesarean section. Abdominal desmoid tumor usually presents as a mass that is sometimes associated with pain¹². Five of our patients presented with abdominal swelling alone and three patients had history of pain over abdominal wall along with a swelling. They are commonly located extraabdominally or intraabdominally¹³. Abdominal wall desmoid tumors arise from musculo-aponeurotic structures of the abdominal wall, especially the rectus and internal oblique muscles and their fascial coverings, and can cross the midline. Less commonly, they originate from the external oblique muscle and the transversalis muscle or fascia¹⁴. In our study of 8 cases, it was seen that the site of occurrence was extra abdominal. Of these four cases were in right iliac fossa involving the external

and internal oblique aponeurosis and muscle. Three were on left side involving the external and internal oblique aponeurosis and transversalis muscle, one in epigastric region involving the rectus muscle alone. The desmoid tumors can vary in size, in our study the largest tumour measured 12 x 14 cm x 10 cm. When cut, gritty texture was noted, the cut surface shows grayish white and coarse trabeculations. There is no distinct capsule, and the margins are ill defined whereas on imaging they appear well circumscribed¹⁴. Histologically, they consist of elongated fibroblasts and myofibroblasts characterized by elongated, tapered cytoplasm, elongated, vesicular, typical appearing nuclei; and multiple small nucleoli. The cells are linearly arranged and are surrounded and separated from each other by collagen^{4,8,12}. Surgery always aims at radical tumor resection with tumor free margins, and leaves musculoaponeurotic defect behind^{15,16}. In small desmoid tumors abdominal wall integrity after full-thickness surgery can be restored with tension free repair with synthetic sutures^{3,17}, reconstruction with synthetic mesh is employed if the defect is large or cannot be repaired without tension¹⁸. In one study, tumor resection with free margins and reconstruction of the abdominal wall was successfully performed with a Bard Composix-Mesh¹⁹. In this study, surgical resection with 3cm tumor free margin, confirmed on frozen section was achieved. Tension free polypropylene mesh reconstruction was done to repair the defect. It was seen that even after 18 months of follow-up there was no recurrence of tumor and there was no mortality.

CONCLUSION

Treatment of desmoid tumors remains challenging. Non-surgical treatment resulted in diverse and has unpredictable outcome and can be considered in patients with unresectable lesions or for adjuvant therapy. Radical resection with tumor free margins remains the principal determinant of outcome with the risk of local recurrence. Moreover mesh reconstruction can be considered in defects where proper approximation cannot be achieved.

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