

Abdominal Wall Reconstruction Following Excision of Abdominal Wall Desmoid Tumours

Mohamed A. Aamer, MD. MRCS¹; Sherine Metwally, MD².

- 1) Department of General Surgery, Faculty of Medicine Ain Shams University.
- 2) Department of Plastic Surgery, Faculty of Medicine Ain Shams University.

Background: Although lacking metastatic potential, abdominal wall desmoid tumours can grow to large sizes and destruct the surrounding structures.

Patients and methods: The current study is a prospective study including 17 patients with abdominal wall desmoid tumours conducted during the period from April 2011 till September 2014 in Ain Shams University and Dar Al-Hekma Hospitals. The patients were treated by radical resection of their tumour followed by immediate reconstruction of the abdominal wall by double face proceed mesh after confirmation of negative resection margins by frozen section technique.

Results: All tumours were resected with a safety margin of at least 1 cm as proved by frozen section except for one tumour (5.88%). The mean operative time was 116.18 ± 12.61 min (range 95-140 min). The mean amount of intraoperative blood loss was 511.33 ± 166.56 mL (range 220-800 mL). There was no intraoperative vascular or organ injury and no postoperative abdominal hypertension. The mean visual analogue scale was 3.29 ± 1.05 (range 2-5). The mean hospital stay was 3.35 ± 1.11 days (range 2-5 days). Postoperative complications were mild and resolved conservatively including wound seroma in 2 patients (11.76%) and superficial wound infection in 1 patients (5.88%). There was no tumour recurrence or incisional hernia during the follow-up period. Hypertrophic scars occurred in 2 patients (11.76%) and improved with local cortisone and fractional CO_2 laser.

Conclusion: Radical resection of abdominal wall desmoid tumours with frozen section confirmation of free margins followed by abdominal wall reconstruction by double face proceed mesh offers the best option for treating such tumours.

Key words: Desmoid tumours – proceed mesh – abdominal wall.

Introduction:

Desmoid tumour, also known as aggressive fibromatosis, is an uncommon neoplasm of the soft tissues caused by a monoclonal proliferation arising in the musculoaponeurotic structures that locally infiltrate but lack metastatic potential.¹

This kind of neoplasm arises deep in the musculo-aponeurotic structures, and although they have no potential to metastasize, they can be locally aggressive with an infiltrative growth pattern, high relapse rates ranging from 23 to 40% in different series.^{2,3,4}

In most cases, the presentation is sporadic, although there is a familial form associated

with familial adenomatous polyposis (FAP) which has different features.⁵

The sporadic forms generally appear in the second or third decade of life in the trunk or limbs⁴, predominantly affecting females. These forms seem to be related to prior surgical trauma and to oestrogen status,⁶ as they usually occur in fertile women and are uncommon during menopause, and sometimes during pregnancy an increase in volume occurs in an already existing tumours.⁷

Many studies showed that between 37 and 50% of desmoid tumours start in the abdominal area.⁸ Desmoid tumours are

usually localized in the abdominal wall, mainly in the right lower quadrant, by the superficial sheath of the rectus muscle, and can grow to large dimensions and weight (many kilograms). They have firm to wooden consistency, silver-grey discoloration with a fibrous sheath, without self capsule, and invade adjoining myofibres.⁹

Abdominal desmoids may be asymptomatic since they grow, and so infiltrate adjoining tissues or cause visceral compression.¹⁰ At clinical examination, extra-abdominal desmoids are painless, fixed, smooth, and appear as a mass covered by healthy skin. Pain occurs because of muscle nerve compression.¹¹

Magnetic resonance imaging is vital for image-based diagnosis of this kind of tumours, as it reveals the tumour's relationship with surrounding structures such as blood vessels, bone and nerve structures.¹²

The treatment of such neoplasms is guided by the clinical and evaluative characteristics. Radical therapy consists of wide tumour and adjoining tissue resection. Excision of the lesion must be complete in order to decrease the local recurrence rate.¹⁰

Surgical resection is considered complete when the whole lesion (both micro- and macroscopically) is excised. A margin is considered negative when there is no-evidence of disease either micro-or macroscopically.⁵

In large lesions, complete resection can create a parietal defect that cannot be repaired by direct sutures. In this case meshes or myocutaneous flaps are used.¹⁰ The integrity of the abdominal wall guarantees closure of the abdominal cavity with protection of the intestine and maintenance of a flexible musculoskeletal system which gives static and dynamic balance to the trunk and keeps the intra-abdominal pressure gradients needed for breathing and defecation.¹³

The use of mesh is advantageous because it allows drainage and promotes the ingrowth of granulation tissue, further enhancing the strength of the abdominal wall.¹⁴

Polypropylene meshes (prolene, marlex) are used, which have large pores, and are knitted and shaped to fit the dimension of the

defect. The prosthesis is fitted in the parietal-omental space, fixed with non-absorbable separate stitches to myofibers, and if needed to the costal arch and hipbone.¹⁰

If removal of the omentum and posterior rectus fascia is needed, extended polytetrafluoroethylene meshes (ePTFE-dual mesh with holes) are used, which can be put directly on intestinal loops, decreasing as much as possible the risk of intraperitoneal adhesions, fecal fistulas, or compartmental syndrome.¹⁵

Proceed™ Surgical Mesh is a sterile, thin, flexible laminate mesh designed for the repair of hernias and other fascial deficiencies. The mesh product is composed of an oxidized regenerated cellulose (ORC) fabric, and prolene™ Soft Mesh, a non absorbable polypropylene mesh which is encapsulated by a polydioxanone polymer. The polypropylene mesh side of the product allows for tissue ingrowth, while the ORC side provides a bioresorbable layer that physically separates the polypropylene mesh from underlying tissues and organ surfaces during the wound healing period to minimize tissue attachment to the mesh. The polypropylene provides a bonded to the ORC layer.¹⁶

This study is a prospective study combining the work of general and plastic surgery for reconstructing the abdominal wall after abdominal wall desmoid tumour complete resection.

Patients and methods:

The current study comprised 17 consecutive patients with abdominal wall desmoid tumour that were chosen from those attending the outpatient clinics of Ain Shams University and Dar Al-Hekma Hospitals during the period from April 2011 till September 2014.

Full history from every patient was taken including: Age, sex, duration, history of use of contraceptive pills and previous pregnancy for female patients, abdominal wall trauma, previous abdominal surgery, history of irradiation, family history of similar condition and of familial adenomatous polyposis (FAP).

Full examination was done including

general examination, and local examination of the abdomen including the site, size, shape, surface of the swelling, skin overlying and its relation to surrounding structures, and P/R examination.

Investigations included: Full laboratory investigations including CBC, PT and PTT, liver function tests, kidney function tests, and fasting blood glucose; radiological investigations including MRI of the abdomen and pelvis, and chest X-ray, cardiological investigations including ECG and echocardiography, and finally colonoscopy to exclude the presence of familial adenomatous polyposis (FAP).

Patients with intraperitoneal desmoids or associated FAP were excluded from the study. The patients were operated on by combined general and plastic surgeons to assure adequate repair of the resulting abdominal wall defect after complete excision of the abdominal wall desmoid tumours **Figure (1)**.

The operation was performed under spinal or general anaesthesia according to the site of the tumour. The flaps of the abdominal wall were elevated, the tumour was dissected from surrounding structures and completely excised with a safety margin of at least 1 cm. The specimen was sent to frozen section histopathological examination to ensure free margins.

The myofacial layer was repaired without tension using proceed mesh of 15 x 15, or 30 x 30 cm according to the size of the defect with at least 2 cm overlap all around the defect to avoid tension and subsequent increase in intra-abdominal pressure. Any redundant skin and subcutaneous tissue resulting from the excision of the tumour were excised and a suction drain size 18 was left for drainage and layered closure of the subcutaneous tissue and skin with subcuticular sutures was done.

Any intra-operative complications were recorded. Also the amount of intra-operative blood loss was recorded.

Post-operatively, the intra-abdominal pressure was measured daily by manometers connected to urinary catheters, the visual analogue scale was used to assess pain severity, any post-operative complication

whether local or systemic was recorded. The hospital stay was measured in days.

Post-operatively, patients were followed up in the outpatient clinic twice weekly in the 1st week then weekly for one month and then every 6 months.

During the follow-up visits the patients were assessed for any local or general complication, occurrence of hernia or recurrence of the tumour.

During the follow-up visits, full lab investigations were done monthly for 6 months then every 6 months. Abdominal U/S was done every 3 months and abdominal MRI every year during the follow-up period to assess recurrence of the tumour or any other complications. The time to return to work was assessed for every patient.

The results of the study was compared to other studies due to rarity of the tumour and lack of randomized trials in the local and international practice.

Results:

The study comprised 17 patients of which 13 were females (76.47%) and 4 were males (23.53%) **Table (1)**.

The mean age of the patients was 35.82 ±5.81 years (range 23-47 years).

There was history of oral contraceptive pill (OCPs) use in 7 out of the 13 female patients (53.85%).

There was history of previous caesarean section (CS) in 10 of the 13 female patients (76.92%).

There was history of appendicectomy via grid iron incision in 3 patients of the 17 patients (17.65%), history of repair of perforated DU in one male patient via upper midline incision (7.69%) and history of laparoscopic cholecystectomy in one patient (7.69%) **Table (2)**.

There was no history of abdominal wall trauma or irradiation in any of the patients.

There was no family history of desmoid tumours or familial adenomatous polyposis (FAP) in any of the patients.

The mean duration of the tumour till seeking medical advice was 5.9 ±3 months (range 1-12 months).

The mean diameter of the tumours was 5.8 ±2.2 cm (range 2-10 cm).

Sixteen of the tumours were located infraumbilical (94.12%), while one tumour was located supraumbilical (5.88%).

The mean operative time was 116.18 min ±12.61 min (range 95-140 min).

All tumours were completely excised with a safety margin of at least 1 cm as proved by frozen section except for one tumour (5.88%) where the frozen section showed infiltration of the upper and left margin, so further intra-operative clearance of the surrounding margins was done which proved to be histopathologically free.

Thirteen patients were operated upon under spinal anaesthesia (76.47%) while 4 (23.53%) were operated upon by general anaesthesia.

The mean amount of intra-operative blood loss was 511.33 ±166.56 mL (range 220-800 mL).

There was no intra-operative vascular or organ injury.

The mean post-operative intra-abdominal pressure as measured by manometers attached to urinary bladder catheter was 5.94 ±2.05 mmHg (range 3-10 mmHg).

The mean visual analogue scale (VAS) was 3.29 ±1.05 (range 2-5).

The mean hospital stay was 3.35 ±1.11 days (range 2-5 days).

The mean time to return to work was 21.29 ±3.35 days (range 16-28 days). **Table (3).**

Post-operative complications were only local complications without the occurrence of any systemic complications and included: Wound seroma in 2 patients (11.76%) that resolved spontaneously with repeated aspiration, and superficial wound infection in one patient (5.88%) that resolved spontaneously with antibiotics and daily dressing in 2 weeks time.

The mean follow-up period of the 17 patients was 20.70 ±9.95 months (range 8-38 months).

None of the cases developed tumour recurrence or incisional hernia during the follow up period (0%).

There were two cases of hypertrophic scars

(11.76%), that improved with local cortisone injection and fractional Co₂ laser.

Discussion:

Desmoids are rare mesenchymal tumours with benign evolution but high local aggressiveness.¹⁰

The sporadic forms generally appear in the second or third decade of life,⁴ predominantly affecting females. These forms appear to be related to prior surgical trauma and to oestrogen status.⁶

In our study 13 patients were females (76.47%), and the mean age was 35.82 ±5.81 years.

In one study, 11 patients were women (mean age 36 years) and 3 were males (mean age 47 years).¹⁷ In another study 12 of 20 patients were women, the median age was 36 years.⁵ In a third study, 6 of 7 patients were women (mean age 35 years, range 25-53 years).¹⁰

The incidence of fibromatosis is greatest in the abdominal wall after childbirth or following the use of oral contraceptives.¹⁸

In our study, there was a history of oral contraceptive pill use in 7 of the 13 female patients (53.85%).

However in other study, there was only one case of prior oral contraceptive use (8%).⁵

In our study, there was a history of previous caesarean section in 10 of the 13 female patients (76.92%), history of grid iron incision for appendectomy in 3 of the 17 patients (17.65%), history of repair of perforated DU with upper midline incision in one patient (7.69%) and a history of laparoscopic cholecystectomy in one patient (7.69%).

In a review of studies, it was noted that 68-86% of cases of abdominal wall and intra-abdominal desmoids occurred after abdominal surgery, the majority occurred within 5 years.¹⁹ This is corroborated by another finding that 84% of cases of FAP-associated desmoids developed within 5 years of abdominal surgery.²⁰ Further evidence comes from the recording of desmoid development in laparoscopic port sites.²¹

In our study, there was no family history



Figure (1): Large abdominal wall desmoid tumour after resection.

Table (1): Sex distribution.

Sex \ Frequency & %	Frequency	%
Female	13	76.47
Male	4	23.53

Table (2): Risk factors.

Risk factor \ Frequency & %	Frequency	%
OCPs	7/13 ♀	53.85
CS	10/13 ♀	76.92
Appendicectomy	3/17	17.65
Perforated DU repair	1/17	7.69
Lap. Cholecystectomy	1/17	7.69

of desmoid tumours or FAP in any of the patients.

Recently, it is well known that most desmoid tumors occur sporadically but about 5% arise in association with FAP, and in these patients they are most commonly found in the

abdominal cavity or abdominal wall.²²

In our study, the mean duration of the tumour till seeking medical advice was 5.9 ±3 months (range 1-12 months).

Desmoid tumours can grow to be quite large in diameter (5-15 cm) before they are

Table (3): Mean post-operative intraabdominal pressure, VAS, Hospital stay and return to work

Parameter	Mean \pm SD
Intra-abdominal pressure	5.94 \pm 2.05 mmHg
Visual analogue scale (VAS)	3.29 \pm 1.05
Hospital stay	3.35 \pm 1.11 days
Return to work	21.29 \pm 3.35 days

discovered.²³

In our study, the mean diameter of the tumours was 5.8 \pm 2.2 cm (range 2-10 cm) and 16 of the tumours were located infraumbilical (94.12%), while one tumour was located supraumbilical (5.88%).

In a study, the mean tumour diameter was 4.7 cm (range 2-14 cm).¹⁷

A study, showed different tumour localizations related to gender differences. An abdominal localization is more frequent in young women between 21 and 40 years of age.²⁴ In another study, it was shown that in 28% of the cases, these tumors could arise in the same site as the previous surgery or penetrating trauma after 4 years.²⁵

In our study, 13 patients were operated upon under spinal anaesthesia (76.48%) while 4 patients (23.53%) were operated upon under general anaesthesia. The mean operative time was 116.18 min \pm 12.61 min (range 95-140 min). The mean amount of intra-operative blood loss was 511.33 \pm 166.56 mL (range 220-800 mL).

In our study, all tumours were completely excised with a safety margin of at least 1 cm as proved by frozen section except for one tumour (5.88%) where the infiltrated margins needed further intra-operative clearance. There was no intra-operative vascular or organ injuries.

In a study,¹⁷ which analyzed records of 14 consecutive patients with desmoid tumour of the anterior abdominal wall, two patients were treated with wide surgical excision and immediate plastic reconstruction with one layered Marlex mesh, in 5 patients, two layers of mesh one is vicryl to cover the peritoneal defect and the superficial one is Marlex mesh was placed to cover

the defect, and in the remaining 7 patients Bard Composix mesh was placed after the greater omentum fixation. Frozen section examination proved disease free margins of >1 cm. At pathologic examination, one patient whose tumour reached the iliac crest showed microscopic margin infiltration. There were no perioperative complications.

In another retrospective study⁵ that included 20 patients, surgery was the most widely used first-line treatment (85%), followed by non-steroidal anti-inflammatory drugs (15%). The margin was free in 9 patients (53%), involved in 6 patients (35%), and unknown in 2 patients (12%).

In a third study,¹⁰ records from seven consecutive patients presenting with desmoid tumours of the anterior abdominal wall were analyzed. In all cases, wide surgical excision and immediate plastic reconstruction with extended polytetrafluoroethylene mesh (ePTFE mesh) was done after intra-operative confirmation of disease free margin >1 cm. In all cases, the histological examination confirmed the free margins.

In our study, the mean post-operative intra-abdominal pressure was 5.94 \pm 2.05 mmHg (range 3-10 mmHg) indicating the absence of any intraabdominal tension. The mean visual analogue scale was 3.29 \pm 1.05.

In our study, post-operative complications were only local and included wound seroma in 2 patients (11.76%) and superficial wound infection in one patient (5.88%).

In our study, the mean follow-up period was 20.70 \pm 9.95 months (range 8-38 months). There was no tumour recurrence or incisional hernia during the follow-up period. Hypertrophic scars occurred in 2 patients (11.76%) that improved with local cortisone

injection and fractional CO₂ laser.

In a study,¹⁷ the median follow-up period was 55 months (range 11-108 months). There was no peri-operative complications. Non of the 14 patients experienced recurrence. Two women developed mesh bulging 8 and 12 months, respectively after operation. The mean EORTC QLQ-C30 global health status questionnaire (which is a 0-100 point scale) completed during the last follow-up visit was 97 ±5.9.

In another study,⁵ in a group of 20 patients with a median follow-up of 35 months (0-188), four recurrences were recorded. Three were treated with radiotherapy and one was surgically removed. The estimated 5-year local control was 76% after surgery. The overall 5-year survival reached 100% and estimated disease free survival was 86%.

In a third study,¹⁰ that included 7 patients, the median follow-up period was 60 months (minimum follow-up 2 years, maximum 12 years). No immediate post-operative complications and non of the patients developed recurrence during the follow-up period. The long-term mean of global health status recorded was 100%. The authors used ePTFE meshes for reconstruction and attributed that to the fact that the prosthesis is in direct contact with abdominal organs. Their use warded off the development of compartmental syndrome and did not show any complications, such as infections or recurrences.

In a case report of a 37-year old female patient presenting with a 15 x 11 x 9 cm swelling (desmoid tumour) that was palpable within the left infraumbilical rectus abdominis muscle. A radical en block tumour resection with curative wide margin was carried out resulting in a full-thickness defect of 20 x 15 cm in the lower abdominal wall. A myocutaneous latissimus dorsi flap (16 x 12 cm) was chosen for defect closure. The thoracodorsal vessels were anastomosed to the femoral artery, and a side branch of the long saphenous vein. The abdominal fascia was repaired with a synthetic Marlex net. The post-operative course was uneventful. Three months after surgery the abdominal

wall was stable without the need for further suspension.¹³

In our study, the mean hospital stay was 3.35 ±1.11 days (range 2-5 days), and the mean time to return to work was 21.29 ±3.35 days (range 16-28 days).

In a retrospective study of 14 consecutive patients, the median hospital stay was 6 days (range 4-10 days).¹⁷

In a study of 2 case reports, the first one was a 28 years old female patient with left lower abdominal wall desmoid tumour, that required resection of the tumour with excision of the internal abdominal oblique muscle and covering the defect with a Bard Composix mesh. The second patient was a 37 years old female patient with right ovarian tumour and right lower abdominal wall tumour originating from the transversal abdominal muscle and internal abdominal oblique muscle fascia. First extirpation of the right ovary was performed. The resection of the abdominal wall tumour included the excision of the internal abdominal oblique muscle, replaced by a Bard Composix mesh and covered with major omentum. In both patients the post-operative course was uneventful and they were discharged at the 8th and 9th post-operative day respectively.²⁶

Conclusion:

Radical resection of abdominal wall desmoid tumours with frozen section examination to confirm the negative resection margin, followed by immediate reconstruction of the abdominal wall by double face mesh, represents the best option for treating abdominal wall desmoid tumours.

A multidisciplinary team of surgeons including general and plastic surgeons offer the best chance for the patients with such type of tumours.

Reference:

- 1- Li M, Cordon-Cardo C, Gerald WL, Rosai J: Desmoid fibromatosis is a clonal process. *Hum Pathol* 1996; 27: 939-943.
- 2- Spear MA, Jennings LC, Hankin HJ, et al: Individualizing management of aggressive fibromatoses. *Int J Radiat Oncol Biol Phys* 1998; 40: 637-645.

- 3- Merchant NB, Lewis JJ, Woodruff JM, Leung DH, Brennan MF: Extremity and trunk desmoid tumours: A multifactorial analysis outcome. *Cancer* 1999; 86: 2045–2052.
- 4- Lev D, Kotilingam D, Wei C, et al: Optimizing treatment of desmoid tumors. *J Clin Oncol* 2007; 25: 1785–1791.
- 5- Pajares B, Torres E, Jiménez B, Sevilla I, Rodríguez A, Rico JM, Trigo JM, Alba E: Multimodal treatment of desmoid tumours: The significance of local control. *Clin Transl Oncol* 2011; 13: 189–193.
- 6- Wong SL: Diagnosis and management of desmoid tumors and fibrosarcoma. *J Surg Oncol* 2008; 97: 554–558.
- 7- Enzinger FM, Weiss SW: Soft tissue tumours, 3rd edn. *Mosby, St. Louis* 1995; 201–229.
- 8- Lefevre JH1, Parc Y, Kernéis S, et al: Risk factors for development of desmoid tumours in familial adenomatous polyposis. *Br J Surg* 2008; 95: 1136–1139.
- 9- Lee JC, Thomas JM, Phillips S, Fisher C, Moskovic E: Aggressive fibromatosis: MRI features with pathologic correlation. *Am J Roentgenol* 2006; 186: 247–254.
- 10- Catania G, Ruggeri L, Iuppa G, Di Stefano C, Cardì F, Iuppa A: Abdominal wall reconstruction with intraperitoneal prosthesis in desmoid tumors surgery. *Updates Surg* 2012; 64: 43–48.
- 11- Reitano JJ, Scheinin TM, Hayry P: The desmoid syndrome: New aspects in the cause, pathogenesis and treatment of the desmoid tumor. *The American Journal of Surgery* 1986; 151: 230–237.
- 12- Dinauer PA, Brixey CJ, Moncur JT, et al: Pathologic and MR imaging features of benign fibrous soft-tissue tumors in adults. *Radiographics* 2007; 27: 173–187.
- 13- Brenner P, Rammelt S: Abdominal wall and foot reconstruction after extensive desmoid tumor resection with free tissue transfer. *Langenbecks Arch Surg* 2002; 386: 592–597.
- 14- Voyles CR, Richardson JD, Bland KI, Tobin GR, Flint LM, Polk HC Jr: Emergency abdominal wall reconstruction with polypropylene mesh: Short-term benefits versus long-term complications. *Ann Surg* 1981; 194: 219–223.
- 15- Rohrich RJ, Lowe JB, Hackney FL, Bowman JL, Hobar PC: An algorithm for abdominal wall reconstruction. *Plast Reconstr Surg* 2000; 105: 202–216.
- 16- Ethicon Product Catalog: Hernia repair: Proceed mesh, 2014. www.ecatalog.ethicon.com/herniarepair/view/proceed-mesh.
- 17- Bertani E, Chiappa A, Testori A, Mazzarol G, Biffi R, Martella S, Pace U, Soteldo J, Della Vigna P, Lembo R, Andreoni B: Desmoid tumors of the anterior abdominal wall: Results from a monocentric surgical experience and review of the literature. *Annals of Surgical Oncology* 2009; 16: 1642–1649.
- 18- Lewis JJ1, Boland PJ, Leung DH, et al: The enigma of desmoid tumors. *Ann Surg* 1999; 229: 866–872.
- 19- Clark SK, Phillips RK: Desmoids in familial adenomatous polyposis. *Br J Surg* 1996; 83: 1494–1504.
- 20- Bertario L, Russo A, Sala P, et al: Genotype and phenotype factors as determinants of desmoid tumors in patients with familial adenomatous polyposis. *Int J Cancer* 2001; 95: 102–107.
- 21- Lynch HT, Fitzgibbons R Jr: Surgery, desmoid tumors, and familial adenomatous polyposis: Case report and literature review. *Am J Gastroenterol* 1996; 91: 2598–2601.
- 22- Latchford AR, Sturt NJ, Neale K, Rogers PA, Phillips RK: A 10-year review of surgery for desmoid disease associated with familial adenomatous polyposis. *Br J Surg* 2006; 93: 1258–1264.
- 23- Hartley JE, Church JM, Gupta S, et al: Significance of incidental desmoids identified during surgery for familial adenomatous polyposis. *Dis Colon Rectum* 2004; 47: 334–340.
- 24- Sørensen A, Keller J, Nielsen OS, Jensen OM: Treatment of aggressive fibromatosis: A retrospective study of 72 patients followed for 1-27 years. *Acta Orthop Scand* 2002; 73: 213–219.
- 25- Ambrose WL, Dozois RR, Pemberton JH, Beart RW, Ilstrup DM: Familial adenomatous polyposis: Results following ileal pouch-anal anastomosis and ileorectostomy. *Dis Colon Rectum* 1992; 35: 12–15.
- 26- Overhaus M, Decker P, Fischer HP, Textor JH, Hirner A: Desmoid tumor of the abdominal wall: A case report. *World Journal of Surgical Oncology* 2003, 1: 11–15.