The authors present their experiences of handling three clinical cases of patients with a rare type of tumor – a desmoid tumor. The patients, aged between 23 and 45 years, 2 females and 1 male, were treated through surgery and underwent a reconstruction of abdominal wall by the colocative positioning of two meshes: a PTFE mesh and a polipropylene mesh. Good “mechanical” results of reconstruction were obtained without significant post-operative complications. As to date, no recurrence symptoms have been reported although a relatively short post-operative observation period may result inconclusive.

Key words: desmoid tumor, reconstruction of the abdominal wall, abdominal mesh

Desmoid tumor is in histopathologic terms a benign tumor which appears in fascio-muscular structures without metastasis. The tumors originate from miofibroblast cells (fig. 1), are rare and sporadic (0.03% of all tumors) and their explicit origins remain unknown (1).

A more frequent occurrence of desmoid tumors has been established in patients who underwent a previous surgical intervention due to another medical condition like cesarean sections, local interventions, or in post trauma. Desmoid tumors tend to appear more in female patients after childbearing but the universal age gap is established between 10 and 40 years of age.

Familial-genetic factor on chromosome 5 has been named as contributing to the appearance of desmoids tumors. A link to familial adenomatous polyposis has also been observed correlated with the APC gene mutation in 10-15% of desmoid tumor patients. Further confirmation of this correlation phenomenon is found in co-occurrence of desmoids tumors with Gardner’s syndrome which is characterized by the same gene mutation (2, 3).

Endocrinic aetiology also has a strong presence in explaining the origins of desmoid tumors owing to the fact that the occurrence of the tumor increases in young women during pregnancy of after childbearing with some
cases of spontaneous regression during menopause and after anticonceptive pill treatment. Other cases responded to tamoxifen treatment (4).

Desmoid growths are primarily located in abdominal wall (fig. 2) and on limbs, but their intraperitoneal asymptomatic forms are most difficult to diagnose in primary investigation as the tumor does not present any morbid symptoms up to the point of infiltrating into neighbouring structures and organs which may finally produce symptoms of advanced, by this time, development of this tumor (5). Desmoid growths are typically hard, inmobile structures with regular shapes (fig. 3, 4, 5). The skin above the growth remains unchanged, without ulceration or bleeding.

Many desmoid tumors are diagnosed by coincidence which for surgical patients undergoing a primary intervention means another secondary intervention assuring adequate, oncologically clean margins to prevent local recurrence. Irrespective of the origins and site of the tumor, the tendency for recurrence remains one of the most characteristic features of desmoids tumors. Therefore the choice of most adequate and reliable reconstruction technique is so crucial for such cases (6).

Double mesh reconstruction of abdominal wall is at present a recognized technique providing good overall results both mechanical and plastic in patients who underwent radical surgical intervention with significant fascial-peritoneal subsidence (6). The authors do not reject nor negate other methods implemented, only aim to present their experiences in the double mesh reconstruction approach after desmoid tumor excision. The positive and promising results promote the application of this technique, especially in cases of young patients.
where the priority is a prompt incorporation into a daily routine and work activity.

CASE REPORTS

Three cases of desmoids tumors were reported in the period between 1/03/2008 and 1/03/2009, and their clinical histories were reviewed at our hospital centre.

All patients, 2 female and one male, underwent surgical interventions and desmoid tumors were removed from within the scar of previous laparotomy of the abdominal wall.

The female patients, both had a previous cesarean section. The male patient of 23 years had a laparotomy intervention due to a traffic accident resulting in splenectomy and a rupture of small intestine mesenterium. The latter was the only preoperatively diagnosed desmoids tumor case confirmed in a thick-needle biopsy and this patient was submitted to only one intervention with a simultaneous reconstruction of the abdominal wall. Respectively, the female patients had to undergo a second intervention owing to the lack of tumor specification in the preoperative diagnostic process. These tumors were treated as benign in both pre-operative procedures and operation planning. During the second intervention, where the margins of tissues were removed and abdominal walls reconstructed, an intraoperative review of margins was performed which remains a fundamental procedure for ensuring the success of total removal of desmoid tumors (their asymptomatic infiltration has very wide margins).

The block resection technique of the abdominal wall was applied with special consideration and scrutiny given to the faultless resection of tissue and adequate protection to the internal organs. The margin resection was performed almost “in the air” with good anesthetic relaxation of the patient in full intratracheal general anaesthesia.

In all three cases an identical reconstruction technique was employed enabling a total removal of desmoids tumor margins, retaining a 5 cm wide oncologically clean tissue margin. The post resection subsidence was between 10 and 32 cm wide. Two types of prosthesis were combined in the reconstruction- a PTFE prosthesis and a polypropylene mesh. The polypropylene mesh was sewn above the PTFE and embedded in the oncologically free tissue margin by means of single prolen “00” sutures. Very few other sutures were used apart from the colocative positioning of mesh.

Intraoperative hemostasis and the tissue debride was performed by bipolar “ligasure” diathermy. Replacing monopolar diatermy with a bipolar “ligasure” limited, as we believe, some postoperative complications such as serum exsudation due to a smaller extent of energy transmission.

Postoperatively, only one patient presented modest symptoms of serum exsudation treated with two skin punctures and a compress wound dressing without the necessity for a further treatment. Redon’s drains were employed in all three cases, but no symptoms of bleeding, infections, skin necrosis were detected.

The patients have been regularly monitored in the outpatient clinic of our hospital with full clinical examinations, USG scans every six months and a TK every 12 months. Up to date no recurrence symptoms have been reported.

DISCUSSION

Desmoid tumor, also known as fascio-muscular fibromatosis is a rare tumor typically solitary with a higher frequency of occurrence in females in the second, third and a fourth decades of life (7, 8). Its general occurrence ratio is 2.4-4.3 cases per one million of population. It is typically a hard tumor-like growth of fibrotic tissues infiltrating and locally aggressive with a significant tendency for recurrence after total oncological resection. The recurrence rate is between 25 and 65% but without metastasis (9). Only single cases of withdrawal of this condition have been reported and were linked to a menopause, and anticonceptive pill treatment (4).

Typical occurrence sites are: abdominal wall (50%), limbs (40%) and small intestine mesentery (10%). The rate of 30% of recurrence applies to post-laparotomy sites, independent of the primary cause of intervention. Desmoid tumor coexists with polyposis of the colon and Gardner’s syndrome (10).

The most problematic tumors for diagnosis are those located intraperitoneally. Their localization implies infiltration onto neighbouring structures and tissues, with frequent lesion of and resulting from that unattainability of intervention.
Surgical treatment remains the only recognized method of its elimination with confirmed efficiency. The surgical procedure must be performed with appropriate oncological radicality and therefore there are significant difficulties involved at the time of reconstruction.

Double mesh reconstruction (PTFE and polypropylene) is currently the elective technique for dealing with abdominal wall subsidence allowing good overall effects of the performed reconstruction and can be recommended for mending large size subsidence.

Due to the strong tendency for local recurrence regardless of radical surgical interventions alternative and complementary treatments are being sought and such as teofiline, chlorotiazide, non-steroid anti-inflammatory drugs as well as chemotherapeutical means are under investigation (4, 6).

REFERENCES


Received: 3.03.2010 r.
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