

Leiomyoma of the Round Ligament Presenting as a Large Inguinal Mass

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A 42-year-old woman was admitted to Kochi Prefectural Seinan Hospital complaining gradual enlargement of painless mass in the left lower quadrant. Physical examination revealed a 15×13 cm, immobile, elastic firm mass protruding from the abdominal wall in the left inguinal region. No bowel or urinary symptoms were present. Gynecological examination was negative. Tumor markers for ovarian carcinomas such as carcinoembryonic antigen, cancer antigen (CA) 125, CA 130 and CA72-4 were within normal limits. Ultrasonography revealed a well-defined tumor consisted of cystic and solid components in the inguinal canal. A plain CT scan demonstrated a large, well-circumscribed, heterogeneous mass present in the pelvic cavity and inguinal canal consecutively. Barium enema and DIP were normal. Preoperative diagnosis was a soft tissue tumor with cystic degeneration of unknown origin, situated in the intra- and extra-pelvic cavity.

Operative finding revealed a large tumor arising from the left intra-abdominal round ligament and grown into the inguinal canal through the internal inguinal ring. The tumor was macroscopically benign neoplasm and easily removed from the round ligament. Resected tumor with various-sized spongy lesions, measured 12×14×5 cm and weighed 665g, was histologically diagnosed as typical leiomyoma with myxoid degeneration.

Key word: Leiomyoma
Tumor of the round ligament

Introduction

When a mass is discovered in the inguinal region, it may be usually diagnosed as inguinal hernia, enlarged lymph node or occasionally hydrocele of the canal of Nuck in women. Rarely, a tumor of the round ligament should be considered as a differential diagnosis.

The round ligament is embryologically a mesodermal origin formed by the caudal portion of the mesonephric

fold. Anatomically, it begins at the cornu of the uterus and extends through the internal ring and along the inguinal canal to the labia majora. The round ligament is composed of smooth muscle, fibrous tissue, fat, blood and lymph vessels, and nerves. However, the tumors of the round ligament originating from such elements of soft tissue are very uncommon. Less than 300 round ligament tumors have been reported and, of these, approximately one-third have been leiomyomas¹⁻⁵⁾. However, no reports of leiomyoma of the round ligament could be found out for last twenty years.

Recently, we treated a patient who had leiomyoma with myxoid degeneration of the round ligament presenting as a large painless mass in the left inguinal region and discuss the preoperative diagnosis of inguinal mass lesions.

Case

A 42-year-old woman was admitted to the Department of Surgery, Kochi Prefectural Seinan Hospital on September 30, 1991, complaining of a large painless mass in the left inguinal region. A thumb-finger-sized mass, which she noticed initially three years ago, has gradually increased in size. There were no change of bowel habit, no urinary symptoms and no irregular vaginal discharge during the entire course. Past and family histories were negative.

Physical examination revealed a 15×13 cm immobile, elastic firm, non-tender mass in the left inguinal region (Fig.1). The surface was smooth and not fixed to the skin. Blood count and serum chemistry were within normal limits. Urinalysis was negative. Tumor markers for ovarian carcinomas such as carcinoembryonic antigen, cancer antigen (CA) 125, CA 130 and CA 72-4 were within normal limits. Ultrasonography showed a well-defined, heterogeneous solid tumor with irregular cystic component located in the inguinal canal (Fig.2). The tumor projected into the inguinal canal from the pelvic cavity. A plain CT scan showed a large, well-circumscribed, heterogeneous mass present in the pelvic cavity and inguinal canal consecutively (Fig.3). The urinary bladder and uterus were

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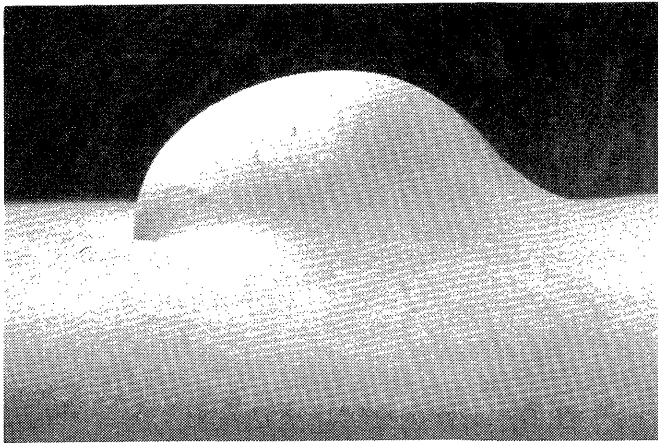


Fig.1 Lateral view of the inguinal mass protruded from the abdominal wall.

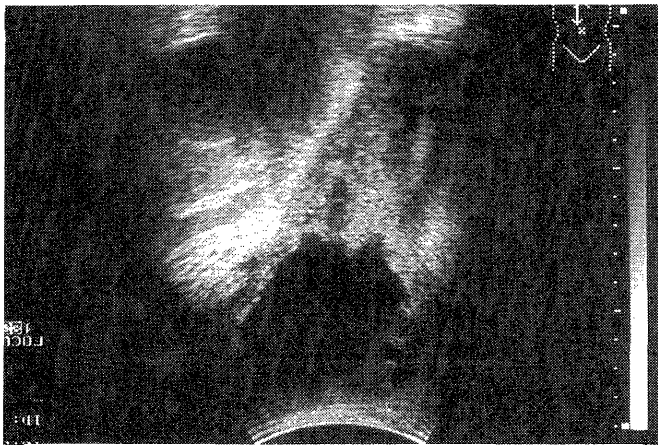


Fig.2 Ultrasonography revealed a tumor consisted of cystic and solid components present in the inguinal canal.

intact. The right ovarium was found, but the left ovarium failed to be found on CT scanning. Barium enema and DIP were normal. Gynecologically, no abnormal findings were seen in the cervix and the uterus. The preoperative diagnosis was a soft tissue tumor with cystic degeneration of unknown origin situated in intra- and extra-abdominal cavity.

Laparotomy was performed by left para-rectal incision across the tumor. Ascites was not present. The multilocular, elastic firm tumor was attached to the left intra-abdominal round ligament and projected into the inguinal canal through the internal inguinal ring (Fig.4). Left ovarium was present with normal appearance. A small leiomyoma was seen in the uterus. The tumor was easily removed from the round ligament. Left inguinal hernioplasty was completed by the silicon mesh (Trex™).

Resected specimen measured 12×14×5 cm and weighed 665g. The cut surface of the tumor had the typical appearance of a large leiomyoma with grayish color and various-sized spongy lesions, containing a total of 320ml of serous

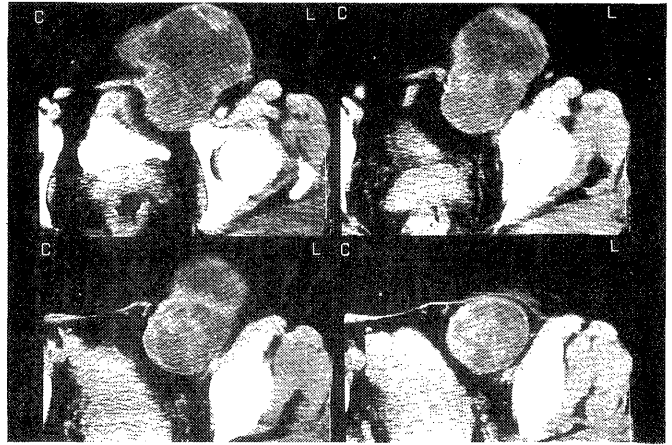


Fig.3 A plain CT scan revealed a well-circumscribed, heterogeneous tumor in the intra and extra-pelvic cavity.

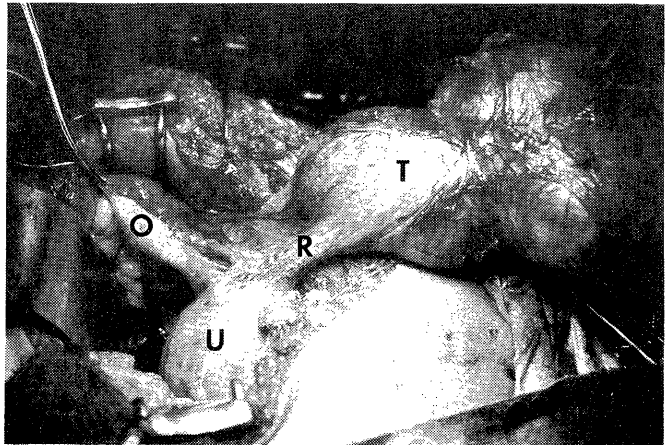


Fig.4 Intraoperative findings of the tumor arising from intra-abdominal round ligament.
O:Left ovarium, R:Left round ligament, T:Tumor, U:Uterus.

and gelatinous clear fluid. The tumor, microscopically, consisted of smooth muscle fibers without mitotic figures in the compact area (Fig.5a). Myxoid degeneration was also seen in the spongy lesion (Fig.5b). The tumor was histologically diagnosed as typical leiomyoma with myxoid degeneration by these findings.

Discussion

With recent advances of imaging modalities, the diagnosis of inguinal tumors became easy. However, very little attention was attracted to the tumor of the round ligament, because of the rarity of the disease. Most common three tumors of the round ligament were mesothelial cyst, endometriosis and leiomyoma¹⁾. The other tumors were very few.

Leiomyomas of the round ligament are generally classified into intra- and extra-abdominal type, according to the location of the tumor. The presenting symptoms may

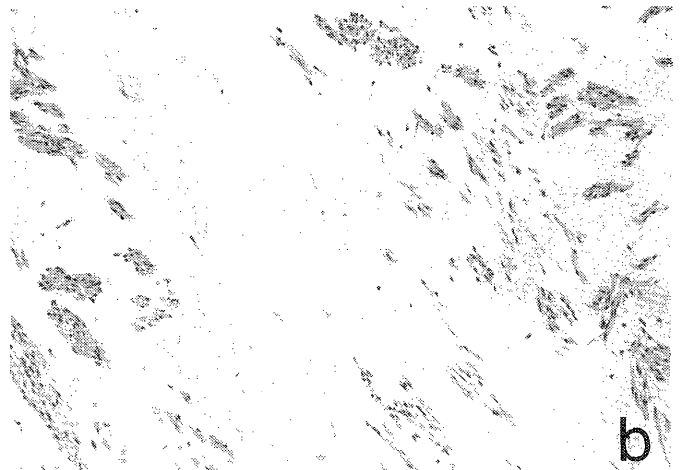
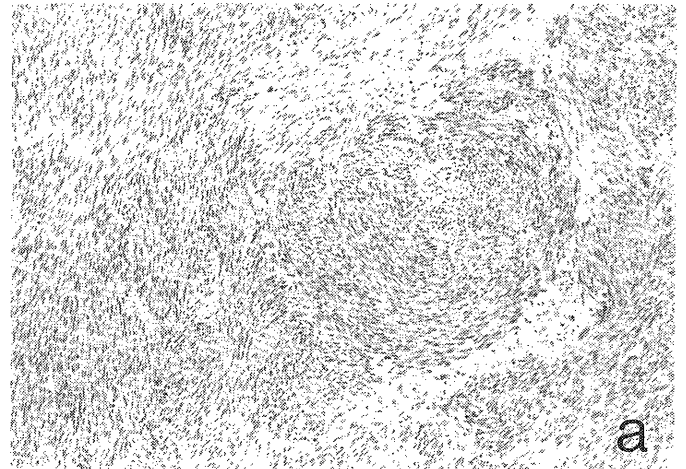
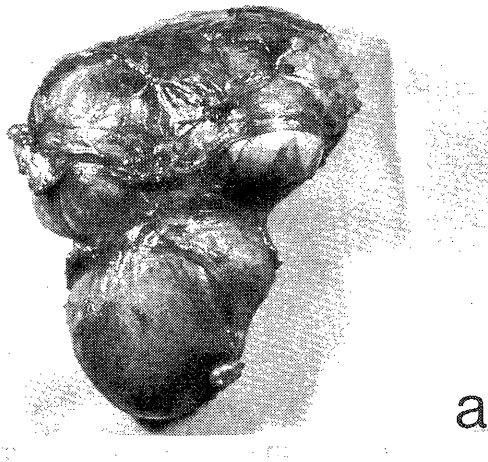


Fig. 5a,5b Resected tumor with multi-locular appearance (Fig. 5a).

The cut surface of the tumor revealed various sized spongy lesions (Fig. 5b).

Fig. 6a,6b Microphotograph of the tumor formed interlacing bundles of smooth muscle cells without mitotic figures (Fig. 6a).

Myxoid degeneration was also present in the tumor (Fig. 6b).

depend on the location, size and rate of growth of the tumor. Extra-abdominal leiomyoma is usually noticed as a inguinal or labial mass by the patient. On the contrary, intra-abdominal leiomyoma is usually asymptomatic. A pedunculated leiomyoma, however, may be symptomatic because of strangulation by torsion⁶⁾. The present case was in very uncommon condition, because of intra-abdominal leiomyoma of the round ligament presenting as a inguinal mass, like a similar tumor of extra-abdominal type. Intra-abdominal leiomyoma may occasionally project through the internal inguinal ring and present as a tumor in the inguinal canal¹⁴⁾. The average size of the tumor was approximately 5 cm in diameter⁶⁾. The tumor was usually unilateral and single^{6,7)}.

Leiomyoma is generally a firm and rubbery solid tumor. Infrequently, cystic or myxoid degeneration occurred in the tumor⁹⁾. On ultrasound examinations, non-degenerative leiomyoma is present as minimally a echogenic mass, while degenerative leiomyoma as a hypoechoic pattern and

excessive degeneration may be recognized as a cystic-echo pattern^{9,10,11)}. Irregular anechoic areas are seen if cystic degeneration is present¹¹⁾. On CT findings, leiomyomas is usually shown as uniformly solid consistency and they may be heterogeneous because of hyaline or cystic degeneration¹²⁾.

Before the advent of imaging modalities, the diagnosis of this disease was very difficult⁶⁾. However, even in this case, the correct preoperative diagnosis of leiomyoma could not be done. The difficulty of the diagnosis of this case was probably due to the location of the tumor, that is, consecutively present in the pelvic cavity and inguinal canal.

In conclusion, leiomyoma of the round ligament should be proposed in any case if a woman has a tumor which arises from the inguinal or labial region, when the presence of inguinal hernia, swollen lymph node or other tumors which recognized has been excluded.

References

- 1) BREEN, J.L. and NEUBCKER, R.D.; Tumors of the round ligament. A review of the literature and a report of 25 cases. *Obstet Gynecol.* 19: 771-780, 1962.
- 2) TAUSSIG, F.J.; Sarcoma of the round ligament of the uterus. *Surg. Gynecol. Obstet.* 19: 218-223, 1914.
- 3) HORINE, C.F.; Tumors of the round ligament. *Am.J.Obstet. Gynecol.* 25: 446-448, 1933.
- 4) SAYET, M.M. and WICKMAN, W.; Papillary cystadenoma of the round ligament. *Am.J.Surg.* 82: 769-770, 1951.
- 5) NUOVO, M.A., NUOVO, G.J., SMITH, D. and LEWIS, S.; Benign mesenchymoma of the round ligament. A report of two cases with immunohistochemistry. *Am.J.Clin. Pathol.* 93: 421-424, 1990.
- 6) MAYO, C.W. and SCHUNKE, G.B.; Leiomyoma of the round ligament. *Arch. Surg.* 41: 637-645, 1940.
- 7) WILSON, S.K., SMITH R.S. and SARRATT, M.H.; Large leiomyomas of the round ligament. *South Med. J.* 65: 604 and 622, 1972.
- 8) EITH, G.T.; Benign mucoid leiomyoma of the right broad ligament. *Rocky Mountain Med.J.* 63: 59-60, 1966.
- 9) TANAKA, Y.; Ultrasonic diagnosis of uterine myoma and ovarian tumor. *Obstetrical and Gynecological Therapy* 59: 611-614, 1989.
- 10) SEKIBA, K. and MASAOKA, H.; Ultrasound diagnosis of gynecological masses. *Obstetrical and Gynecological Therapy* 64: 284-289, 1992.
- 11) KARASICK, S., LEV-TPAFF, A.S. and TOAFF, M.E.; Imaging of uterine leiomyomas. *A.J.R.* 158: 799-855, 1992.
- 12) CASILLAS, J., JOSEPH, R.C. and GUERRA, J.J.; CT appearance of uterine leiomyomas. *Radio Graphics* 10: 999-1007, 1990.