Giant Pseudocyst of the Rectus Femoris Muscle – Repetitive Strain Injury in Recreational Soccer Player

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ABSTRACT

We report a case of a traumatic pseudocyst, in a recreational soccer player, after rupture of rectus femoris muscle. 37-year-old male, with history of repetitive painful accidents, was examined because of a double fist-sized mass in the anterior thigh. Ultrasound examination revealed a cystic mass in the rectus femoris muscle. Surgical removal of the mass and proximal remnant of muscle was done. Primary healing and functional recovery was achieved. Histological analysis revealed pseudocyst filled with degenerating clot and surrounded with thick fibrous capsule. The repetitive strain muscle injury, with prolonged period of healing, can occur like pseudocyst.

Key Words: diagnosis, muscle strain, pseudocyst, rectus femoris muscle, surgery, ultrasound

Introduction

Muscle tumors are rare in young adults. The most common are sarcomas, with the lower extremity, especially the thigh, accounting for the majority of the cases1–3. Benign soft tissue tumors are usually located above the superficial fascia, with only 1% arising in the deep soft tissue or muscle4. Differential diagnosis includes reactive conditions such as nodular fasciitis, different form of myositis, metastases and pseudotumors as a result of inflammation or trauma5–13.

We report a case of a traumatic pseudocyst of muscle rectus femoris. To the best of our knowledge, it has not yet been published in relevant literature. Pseudocysts are only mentioned as a wrapper of the rectus femoris deep tendon in the chronic strain injuries8.

Case Report

A 37-year-old male was examined in out-patient clinic because of mass in the anterior thigh. The patient had a history of the repetitive painful accidents during recreational soccer plays. The first accident occurred 3 years ago. At the end of the soccer play, while he was striking the ball, he felt the strong pain followed by the audible pop in the anterior thigh, which forced him to leave the game. He treated himself with ice and rest. After two months the mass appeared, but the patient continued to play soccer two to three times a week. During this period, the mass remained of the same size.

An ultrasound examination revealed a double fist-sized, painless mass in the proximal thigh (Figure 1). The mass was hard with smooth surface. It was fixed to the deep tissue layers. Skin and subcutaneous tissue were not indurated. The mass was movable with contraction of quadriceps muscle. The thigh circumference was 13 cm wider in comparison to the opposite thigh. The knee flexion was limited for 15° and patient was slightly limping on his right leg.

An ultrasound examination was performed with a linear 7.5-MHz and 3.5-MHz convex-array transducer (Shimasonic SDU-400, Shimadzu Corporation, Kyoto, Japan). It revealed a big cystic mass, measuring 108x78 mm longitudinally (Figure 2a). The mass was located be-
tween vastus muscles and subcutaneous tissue. It had thick hyperechoic clear border from surrounded muscles. Towards the proximal part of the rectus femoris muscle it had irregular border in a zone of 15 to 20 mm (Figure 1b). In the cyst the homogenous, hyperechoic irregular floating papillomatous formations were seen (Figure 2a, 2b). The sonographic guided punction was performed and chocolate-colored liquid was partially evacuated. Cytological analysis revealed fresh and hemolysed erythrocytes with a lot of pigmentophages, crystals and basophilic amorphous substance. The analysis suggested hematoma. The bacteriological culture was sterile. CT scan confirmed the large cyst in the anterior thigh, but the internal substance was homogenous. MRI was not available at that time.

In general anesthesia, the whole tumor with proximal part of the rectus femoris muscle was removed through anterior skin incision. The plan of dissection was subfascial and between the vastus muscles. There was no infiltration of surrounding structures. The wound was drained and closed by layers. Primary healing was achieved. The wound was drained and closed by layers. Primary healing was achieved.

Patient recovered his daily activities after 2 to 3 weeks, and become fully active in soccer about 6 months later. Three years later, he does not feel any physical disability and plays soccer two to three times a week. The defect of rectus femoris muscle is still clinically visible, although the mid-thigh circumference of 54 cm is of the same size like opposite thigh.

Discussion

Although it rarely occurs in young people, a possibility of malignant tumor should be firstly ruled out. Physical examination, duration of symptoms, history of trauma,
ultrasound findings and cytological analysis indicated a benign nature of the lesion. The histological analysis, which corresponded to old, degenerating and encapsulated hematoma, confirmed a traumatic origin of the lesion.

Surgery was indicated due to esthetic impairment and large size of the mass. Less invasive approach (incision, drainage) was ruled out because we did not suspect the cavity with such thick fibrous capsule to obliterate. Minimally invasive approach is indicated in a case of hematoma after the muscle rupture. After three years of recreative soccer play the patient regain the muscle mass of the thigh and full activity even his rectus femoris was missed. This may be an interesting data for rehabilitation after knee injuries.

The muscle strains are common injuries in sports. Strain injury of the rectus femoris muscle is typical for soccer players. Temple published the article about the pseudo-tumor as a consequence of rectus femoris tear. In seven active patients they found only one with specific trauma event, while the others had an active lifestyle but without clear injury in history. In our patient repetitive injuries were documented in the last few years, with the result of growing hematoma. Due to its large size, the process of healing was slow, resulting in encapsulated cystic mass.

Conclusion

It is important to anticipate that repetitive muscle strain injuries can occur like large pseudocyst.

REFERENCES


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DIVOVSKA PSEUDOCISTA RAVNOG BEDRENOG MIŠIĆA – PONAVLJANA OZLJEDA U NOGOMETASA

SAŽETAK