CASE REPORT

SPONTANEOUS BILATERAL PATELLAR TENDON RUPTURE IN AN OTHERWISE HEALTHY PATIENT A CASE REPORT

J. QUINTERO QUESADA, J. MORA VILLADEAMIGO, J. I. ABAD RICO

Bilateral rupture of the patellar tendons is a rare lesion, usually associated with systemic diseases such as systemic lupus erythematosus, rheumatoid arthritis, chronic renal failure and others. It is extremely rare in a healthy individual, with fewer than 15 cases described.

A case of a 32-year-old male with no known history of systemic disease or knee problems is presented. Physical examination, xrays and MRI demonstrated bilateral rupture of the patellar tendons. The tendons were repaired using a nonabsorbable suture reinforced with two titanium anchors fixed to each patella, and a quadriceps tendon flap.

The evolution was satisfactory, with both knees recovering a full range of motion in a four-month period.

CASE REPORT

A previously healthy 32-year-old patient fell while running, suddenly developing pain in both knees and being unable to stand up. He was taken to the emergency department of our hospital. The physical examination showed bilateral swollen knees, high riding patellae and a gap below their inferior poles. The patient was unable to actively extend the legs.

X-rays and MRI revealed rupture of both patellar ligaments (fig 1). Preoperative blood tests were normal.

Exposure was through longitudinal midline incisions. The tendons were torn just beneath the patellar insertion. They were sutured with nonabsorbable synthetic sutures and reinforced with titanium osseous anchors (figs 2, 3) and a quadriceps tendon flap (figs 4, 5). The strength of the repair was tested by careful flexion of the joint.

Both knees were immobilised for six weeks postoperatively in long leg casts, in extension. After cast removal, an active rehabilitation program was started. Full range of movement and recovery of full function were obtained in four months, with normal quadriceps strength and no extension lag.

DISCUSSION

Only a few cases of bilateral spontaneous rupture of the patellar tendons in healthy patients have been reported (1, 5). Most bilateral ruptures are associated with systemic pathology (7), especially collagen disorders, such as systemic lupus erythematosus, rheumatoid arthritis, polyarteritis nodosa ; others have been associated with chronic renal failure, diabetes mellitus, hyperparathyroidism, tuberculosis, typhus, syphilis, xanthoma, scarlet fever and villonodular synovitis, which are predisposing factors for tendon rupture, as they somehow

Department of Orthopaedic Surgery, Carlos Haya General Hospital, Malaga, Spain.

Correspondence and reprints : Julio Quintero Quesada, C/ Alonso Carrillo de Albornoz, 2, 1º, p.3. Malaga, 29017, Spain. E-mail: julioquintero@airtel.net.

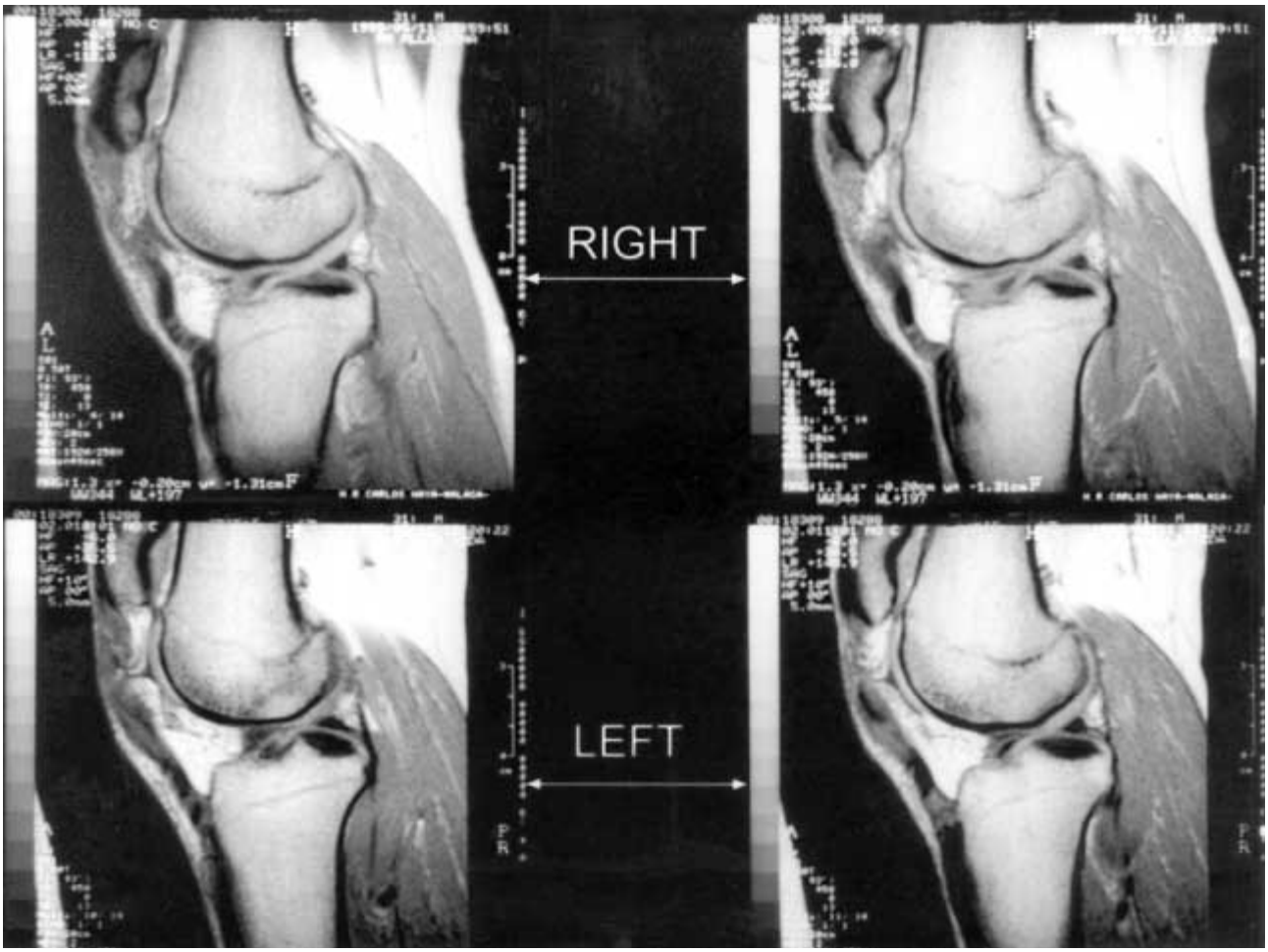

Fig. 1. — MR-image of both tendon ruptures

weaken tendinous tissues. Some authors stress the role of systemic or local glucocorticoid treatment in tendon weakening (2), as corticosteroids inhibit collagen synthesis, but others like Cooney *et al* (3) and Lauridsen *et al* (8) argue that no cases have been reported in patients receiving high-dose corticosteroids (asthma, ulcerative colitis, etc.).

In four cases, the spontaneous rupture occurred during excessive extensor mechanism loading as in basketball, after jumping and landing off balance (10). A relationship has also been suggested between this entity and certain occupations (9).

Our patient suddenly fell when running downhill. The mechanism of rupture can be a sudden contraction of both quadriceps muscles with the knees in flexion. The combination of these forces may lead to a transverse fracture of the patella or to tendon rupture, when excessive.

Biomechanical studies reveal that the force required to disrupt a patellar tendon is 17.5 times the body weight (11). Knee position in maximum load conditions is essential, so that a combination of such a load and an almost fully extended knee creates a critical situation (10).

It is interesting to note that the plain lateral X-ray available, though not taken with both condyles exactly in line, shows a patella alta, a "crossing sign" with a "bump" and an abnormally shallow trochlear groove, thus indicating proximal trochlea deficiency. It can determine an incorrect

Fig. 2. — Postoperative X-ray, left knee

Fig. 3. — Postoperative X-ray, right knee

engagement at the start of flexion (4). Therefore, both knees seem to have been abnormal before the injury.

In a closed-chain activity, where the leg, foot and ground form a continuous kinetic chain, the articular pressure increases as the knee flexes from 0º to 90º. Indeed, the joint-reaction force increases proportionately more than the magnitude of the contact area (6).

Diagnosis is usually made clinically and with conventional X-ray examinations ; it may be confirmed with ultrasonographic studies. MRI can provide additional information such as the location of the tear and the condition of the tendon and surrounding soft tissues.

Any method of repair should allow active rehabilitation in order to avoid quadriceps atrophy. This program consists of isometric quadriceps exercises during the immobilization period, and active quadriceps exercises with progressive increasing range of motion afterwards. Titanium osseous anchors or metallic wire reinforcements may be a worthwhile addition to direct suture. In case of pathological tendinous tissue, a quadriceps reinforcement flap is recommended in order to improve the resistance of the tendon.

CONCLUSIONS

Subcutaneous patellar tendon rupture is a rare pathology, and if bilateral, is even more rare. The majority of the cases are related to underlying pathology, and cases reported in a healthy individual are unusual. The goal of treatment is to achieve

Fig. 4. — Quadriceps flap, after dissection, ready to be reattached.

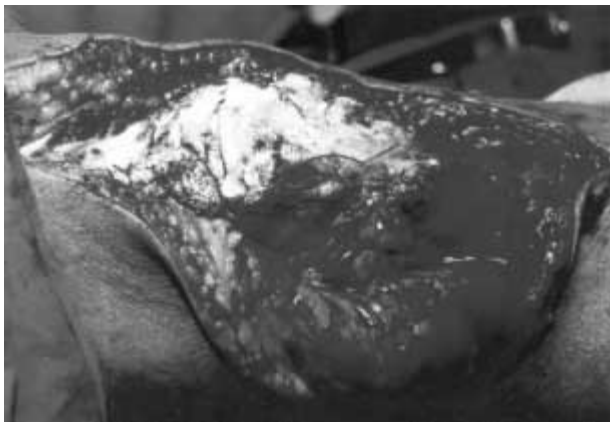

Fig. 5. — Surgical image once repair was completed, with the flap sutured in place.

a repair reinforced with additional tissue, strong enough to allow early gradual rehabilitation.

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