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OLD TOTAL RUPTURE OF THE ADDUCTOR LONGUS MUSCLE

A Report of Seven Cases

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Seven cases of old total rupture of the adductor longus muscle are described. Five patients were referred with the suspicion of a soft tissue tumour. Six patients reported an adequate trauma when thoroughly questioned; four of them had sustained the injury while playing soccer; the seventh patient could not recall any trauma. The diagnosis of this lesion is discussed.

Key words: adductor longus; rupture; sports injury; soft tissue tumour

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Since 1967, seven cases of old total rupture of the adductor longus muscle have been diagnosed at our clinic. Five of these patients were referred with the suspicion of a soft tissue tumour. Total rupture of the adductor longus seems to be relatively rare and this may be one of the reasons why the ensuing chronic condition sometimes is misjudged. To our knowledge only a few cases of this lesion have been reported (Boord 1598, cited by Davidson 1918, Abbe 1895, Davidson 1918, O'Donoughue 1970).

The adductor longus muscle arises from the pubis and inserts on the middle third of the linea aspera on the dorsal aspect of the femur. The muscle is much broader at its insertion than at its origin. On the anterior aspect of the thigh (Figure 1) the sartorius, pectineus and gracilis muscles are the immediate neighbours of the adductor longus.

CASE REPORTS

Case 1. A 23-year-old man was referred with the suspicion of a tumour in the right thigh. Four years earlier he had sustained a trauma while playing soccer. He had been kicking the ball with the medial side of the foot at the same time as an opponent had tried to kick the ball in the opposite direction, i.e., an impact had been directed against the leg forcing it into abduction at the same time as the adductor muscles in the thigh, strongly contracted, counteracted such a motion. When he came for consultation 4 years after the injury a prominence was visible in the upper medial part of the thigh (Figure 2) and corresponding to this an indolent soft mass was palpated. Distal to this a defect could be felt. When the patient tried to adduct the leg against resistance the mass changed its form and consistency; it became more rounded and firmer. Furthermore, its lower border was retracted higher up and at the same time the defect distal to it, between the sartorius and gracilis muscles, became more obvious (Figure 3). This confirmed the diagnosis of an old muscle rupture and taking into consideration the topographic anatomy (compare with Figure 1) it was concluded that it was the adductor longus that had been ruptured. The patient suffered no discomfort of import-

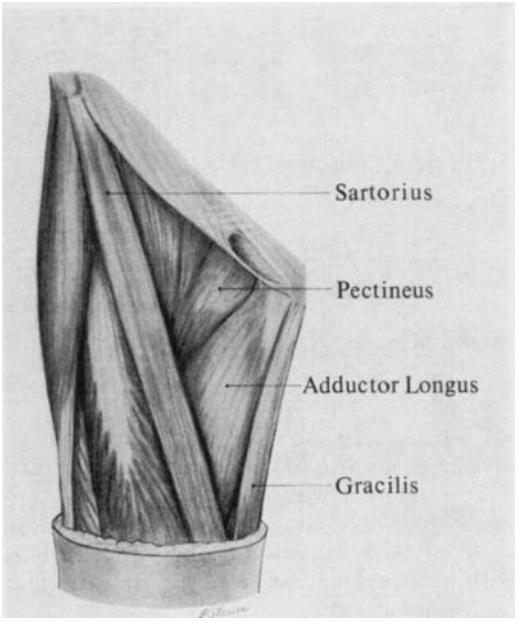
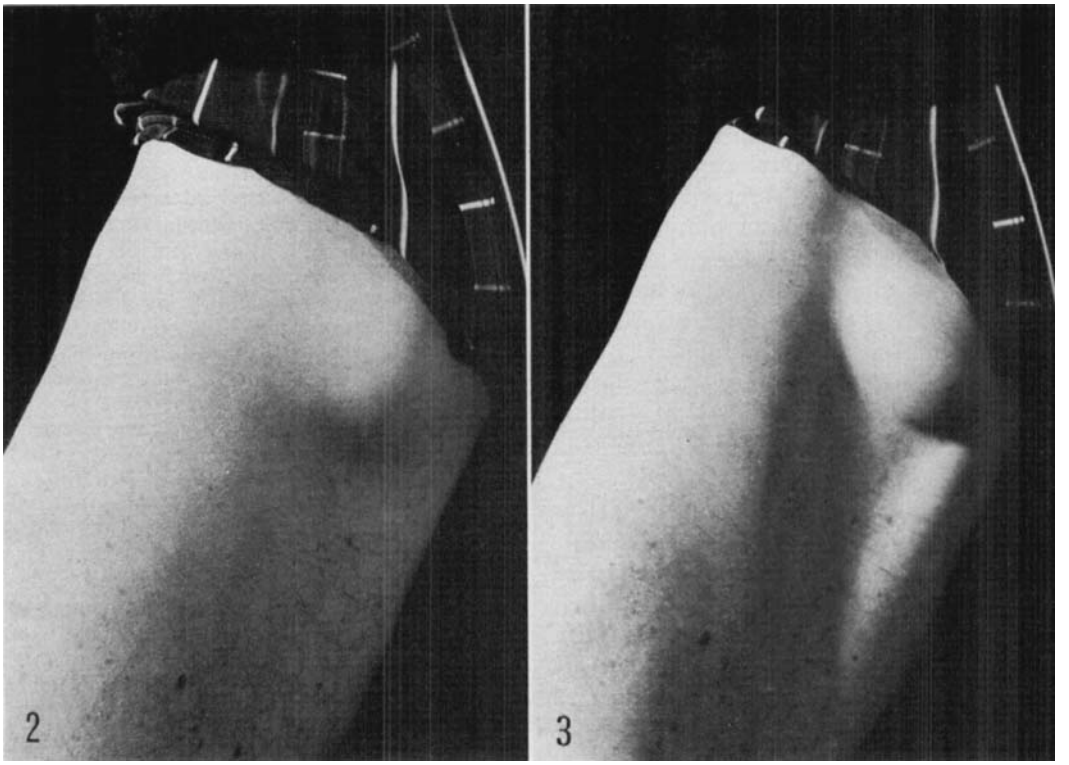


Figure 1. Topography of the adductor longus muscle.

ance and as the diagnosis of a tumour could be refuted there was no indication for treatment.

Case 2. A 31-year-old man was referred with the suspicion of a tumour in the right thigh. Seven months earlier he had sustained a trauma similar to that in Case 1 while playing soccer. He had felt a sudden pain in the medial part of the thigh and some days later he had noticed a blue-green discoloration in the same place. One month later he had noticed a swelling for the first time. At examination under muscle relaxation there was a discrete prominence medially below the groin; its consistency was soft. Under isometric active adduction of the thigh a rounded prominent lump appeared which felt firm on palpation. Furthermore, an aponeurotic band extending from the lump down to the femur could be felt within the angle formed by the sartorius and gracilis muscles. It was con-



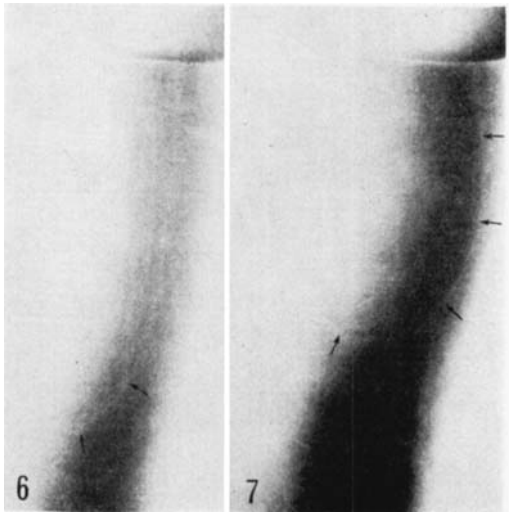
Figures 2 and 3. Case 1. Right thigh during muscle relaxation (Figure 2) and with the adductors contracted (Figure 3). Notice in Figure 3 the triangular defect delimited by the ruptured adductor longus and the sartorius and gracilis muscles (compare with Figure 1).

Figures 4 and 5. Case 3. Right thigh during muscle relaxation (Figure 4) and with the adductors contracted (Figure 5).

cluded that the adductor longus muscle, having retracted proximally after a total distal rupture, eventually had made a new attachment to the femur via the formation of scar tissue. As the patient was free from discomfort no treatment was called for.

Case 3. A 34-year-old man was referred with a suspected soft tissue tumour in the upper medial part of the right thigh. In a soccer game one and a half years earlier he had sustained a trauma similar to that in Cases 1 and 2. He was rather fat and palpation was difficult, but the medial contour of the thigh became more prominent during isometric active adduction of the thigh (compare Figures 4 and 5). It seemed to be an old rupture of the adductor longus muscle and support for this diagnosis was obtained by a soft tissue radiography which demonstrated that this muscle became more rounded at the same time as its distal pole moved proximally during attempted adduction of the thigh against resistance (compare Figures 6 and 7). The diagnosis was then confirmed by needle electromyography of the suspected tumour (Figure 8).

Case 4. A 25-year-old man sustained a trauma similar to that in Cases 1, 2, and 3 while playing soccer. He felt sudden pain in the medial part of the thigh. About 1 month later he noticed a



Figures 6 and 7. Case 3. Soft tissue radiography of the upper medial part of the right thigh during muscle relaxation (Figure 6) and with the adductors contracted (Figure 7). The contour of the ruptured adductor longus muscle is marked by arrows.

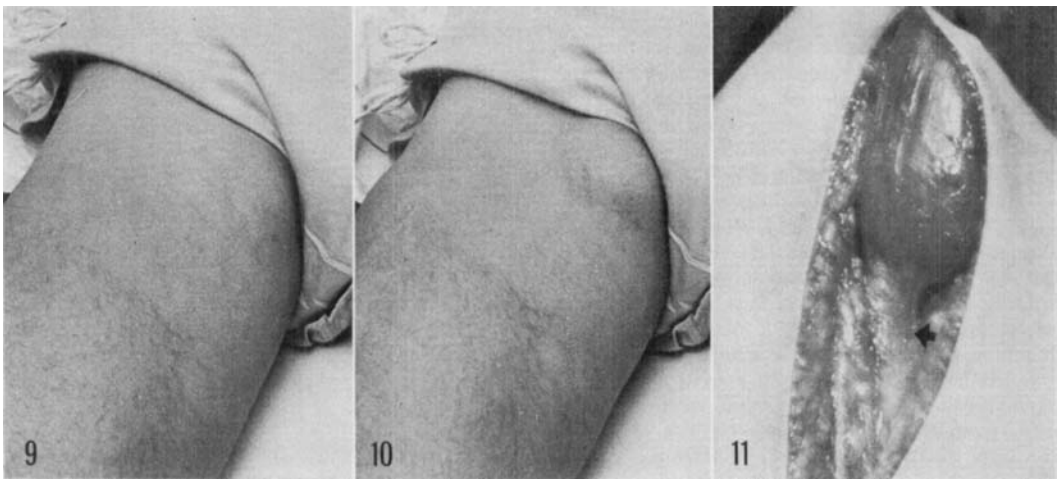
Figure 8. Case 3. Electromyography of the ruptured muscle.

swelling medially below the groin. When he came for consultation one and a half years after the trauma he reported that the swelling had slowly increased in size. At examination the swelling felt soft during muscle relaxation (Figure 9) but became firm, rounded and prominent during attempted adduction of the thigh against resistance (Figure 10). On deep palpation distal to the rounded lump one could feel a broad fibrous band having the same orientation as the adductor longus muscle has normally. As the patient experienced pain during exercise it was decided to explore the lesion. At the operation it could be concluded that the adductor longus muscle after a total distal rupture had retracted proximally and then become re-attached to the femur by the formation of aponeurotic scar tissue (arrow in Figure 11). The nerve to the muscle had a recurrent course and was surrounded by scar tissue which possibly was the reason for the pain during exercise. The muscle was extirpated. At follow-up examination 5 years after the operation the patient was free from discomfort and could adduct both thighs with equal force.

Case 5. A 26-year-old man came for consultation because of a swelling in the upper medial part of the left thigh. Four weeks earlier he had been hit by a heavy bale of paper which had fallen down between his legs and forced the left leg into abduction. During muscle relaxation a soft mass could be palpated at the site of the adductor longus muscle. On isometric active adduction of the thigh it became firm, rounded and more prominent. Taking into consideration the history and the topography and behaviour of the mass a rupture of the adductor longus muscle was diagnosed. As the patient was free from discomfort there was no need for treatment.

Case 6. A 15-year-old boy was referred with a suspected soft tissue tumour in the upper medial part of the right thigh. Three months earlier while riding a motorbike on a stony forest road he had felt a sudden pain medially in the thigh. About 1 month later he noticed a swelling. At the site of the adductor longus muscle palpation revealed an indolent soft mass which became firm, rounded and more prominent when the patient actively resisted abduction of the thigh. At the same time an aponeurotic band extending down to the femur could be palpated in the defect which was present distal to the mass between the sartorius and gracilis muscles. Needle electromyography showed normal muscle activity and confirmed the diagnosis of muscle rupture. He had no discomfort calling for any treatment.

Case 7. A 36-year-old man was referred with a suspected soft tissue tumour in the upper



Figures 9, 10, and 11. Case 4. Right thigh during muscle relaxation (Figure 9) and with the adductors contracted (Figure 10. Figure 11. Lesion surgically explored. The ruptured muscle has retracted and its lower pole has become re-attached to the femur via an aponeurotic band of scar tissue (arrow).

medial part of the right thigh. He could not recall any relevant trauma. On palpation an old rupture of the adductor longus muscle was suspected, but the clinical picture was not altogether clear. Angiography was performed showing a normal vascular pattern. To confirm the diagnosis, operative exploration was undertaken. It was found that the adductor longus muscle after a total distal rupture had retracted proximally and then eventually become reattached to the femur by aponeurotic scar tissue. The lesion was not treated and at follow-up examination one and a half years later the patient was free from discomfort.

DISCUSSION

In cases with a tumour-like swelling high up in the medial part of the thigh an old total rupture of the adductor longus muscle should be considered as a possibility and the patient should be questioned regarding the occurrence of an adequate trauma prior to the appearance of the swelling. Out of the seven patients six recalled that they had sustained such a trauma, four of them while playing soccer; the seventh had forgotten the injury he obviously must have suffered. It is interesting that a total rupture of the adductor longus muscle can occur without causing much trouble for the patient. This observation is in accordance with the well-known fact that after a total rupture of a ligament pain is usually less pronounced than after a partial rupture. Only one patient complained of pain when exercising. The others suffered no discomfort from the rupture in the inveterate stage.

One important differential diagnosis is intramuscular lipoma (Kindblom et al. 1974). This tumour has, in common with the muscle rupture, the sign that the palpable mass becomes firmer in consistency and more rounded in shape during muscle contraction. A difference is that a defect can usually be palpated at the site of the muscle rupture when comparing with the unaffected leg. To some extent the defect may be replaced by fibrous scar tissue. In several of our cases such tissue had become organized into an aponeurotic band serving as a new tendon for the ruptured muscle. Soft tissue radiography, sometimes including tomography, is of value in distinguishing intramuscular lipoma from muscle rupture because of the difference in roentgen absorption between adipose and muscle tissue.

In five of the seven cases the patient was referred with the suspicion of a soft tissue tumour, which is not surprising as the patients had noticed a growing mass. This increase in size is probably due to a compensatory hypertrophy of the ruptured muscle taking place because, having retracted after the rupture, the muscle has to work with the disadvantage of the shortened distance between its origin and the new insertion created by scar tissue.

The diagnosis of old total rupture of the adductor longus muscle is not difficult after thorough questioning and clinical examination taking into consideration function and topographic anatomy.

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