CASE REPORT

Exertion induced rhabdomyolysis of the long head of the triceps

J-N Goubier, O Silbermann Hoffman, C Oberlin

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The case is reported of bilateral rhabdomyolysis of the long head of the triceps following intensive exercise in a 30 year old male weightlifter. The diagnosis was based on myalgias localised to one muscle and raised levels of muscle enzymes. Magnetic resonance imaging helped to locate the site and extent of muscular involvement. Treatment consisted of complete rest and adequate intravenous perfusion to allow clearance of the clinical and biological abnormalities and prevent renal involvement.

Exertion induced rhabdomyolysis is often seen after intensive muscular exercise. However, it is rarely localised. A case of bilateral exertion induced rhabdomyolysis affecting the long head of the triceps is presented. The characteristics of this rare condition are discussed on the basis of our case and the published literature.

CASE REPORT

A 30 year old male weightlifter presented with myalgias located over both arms and forearms on the day after a session of intensive muscular exertion. The pain regressed spontaneously within 24 hours. Five days later, he performed another session of weightlifting. The next day, extensive painful oedema of the arms and forearms developed, initially on the left side and later on the right side as well. The patient presented in this state.

Clinical examination showed oedema of both arms, predominantly on the left side, extending up to the scapula on the same side. There was no sensory or motor deficit and the distal pulsations were distinct. No clinical or biological signs of viral infection were present, and the patient denied steroid or other drug use.

A magnetic resonance imaging (MRI) scan showed a hyperintense signal over the long head of the left triceps (fig 1). Biological tests showed considerably raised levels of enzyme markers of muscle breakdown, with a creatine kinase level of 13 260 units/l (normally less than 195 units/l) and lactate dehydrogenase level of 790 units/l (normally less than 470 units/l). The serum potassium level was 5.3 mmol/l (normally less than 5 mmol/l). Renal function was normal and there were no biological signs of dehydration. The electrocardiogram did not show any abnormalities.

The patient was admitted to hospital and given normal intravenous saline solution at the rate of 3 litres in 24 hours. After 24 hours in hospital, all symptoms of oedema and pain had disappeared, with serum potassium levels normal and muscle enzyme levels lowered. The treatment consisted of complete rest for the affected muscles. The patient had no clinical or biological abnormalities at the time of discharge.

DISCUSSION

Diffuse exertion induced rhabdomyolyses are not uncommon. More than 15 cases have already been described in the literature.[1–5] However, rhabdomyolysis localised to one muscle is rare, as only one case has been previously reported.[6]

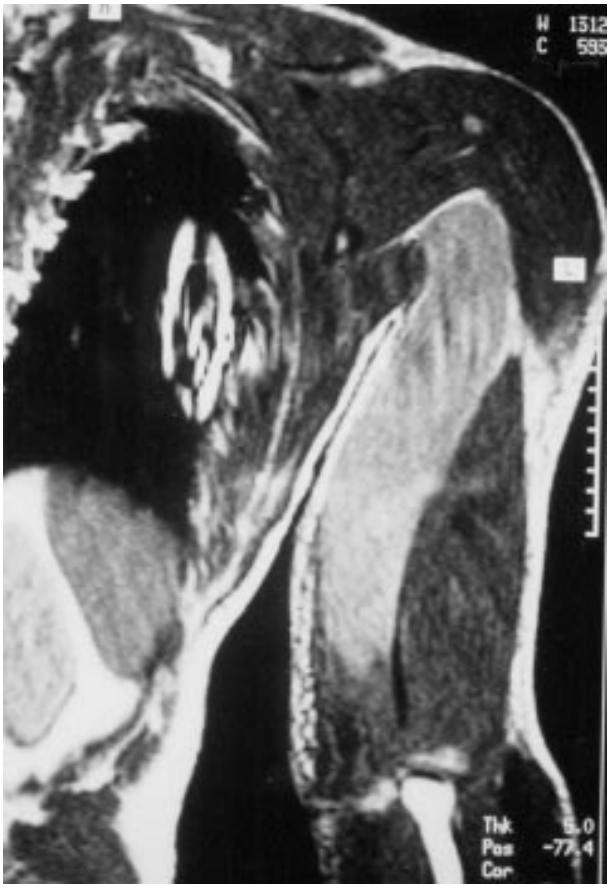

Figure 1 Magnetic resonance image of the long head of the triceps (coronal section): hyperintense signal on T1 weighted image.

The clinical and biological features are similar to diffuse exertion induced rhabdomyolysis. However, in our case and in the case of Bolgiano,[6] myalgias were localised to the affected muscle bilaterally, the levels of muscle enzymes were lower, and no renal complication was noted during and after treatment. In both cases, the clinical and biological signs disappeared within seven days. The prognosis for localised rhabdomyolysis is better than for the diffuse form, as no complication has been described in the literature.[6] Probably, the small mass of affected muscle is not sufficient to produce renal damage. However, the potential gravity of this complication should lead us to investigate the possibility of renal insufficiency in every case and to treat these cases with complete muscular rest and adequate hydration by intravenous perfusion of normal saline solution or mannitol and sodium bicarbonate solution.[6]

Take home message

Exertion induced localised rhabdomyolysis is rare. Clinical and biological examinations confirm the diagnosis and eliminate predisposing factors and renal and cardiac complications. In this case, treatment consisted of rest and hydration.

No predisposing factor has been found such as viral infection or dehydration as in diffuse rhabdomyolysis.[1] Moreover, these patients denied steroid or other drug use.[7] However, it appeared after a session of intensive muscular exercise in both cases. Although our patient routinely exercises his triceps muscles, this session was more intensive than others: the duration of the session was longer and the weights were heavier than usual. Furthermore, in our patient, various extreme exercises were performed using the long head of the triceps, particularly eccentric exercises, which may provoke muscle damage.[8]

Bolgiano's case report did not mention the use of any imaging technique. We performed MRI which showed a hyperintense signal localised over the long head of the triceps. This indicated muscular involvement without specifying the type. This alteration in the signal intensity in T1 and T2 weighted images is commonly seen in rhabdomyolyses, irrespective of their cause.[9] It represents the oedema accompanying the muscular lesions and is not specific to muscular necrosis, as it is also seen in cases of myositis and traumatic muscular lesions.[9 10]

Conclusion

Isolated exertion induced rhabdomyolysis is a rare condition. This possibility must be considered in the face of localised myalgias following intensive muscular exercise. It must be confirmed by determination of levels of muscle enzymes in the blood. An MRI scan can help to confirm the diagnosis of a muscular lesion and determine its extent, although it does not provide any information about the cause. The possibility of renal insufficiency must be investigated thoroughly even though the prognosis is almost always good. In the absence of complications, the treatment consists of complete rest to the affected muscle and maintenance of adequate hydration by intravenous perfusion until the disappearance of the clinical and biological abnormalities.

Authors' affiliations

J-N Goubier, C Oberlin, Service de Chirurgie Orthopédique et Traumatologique, Chirurgie de la main et du membre supérieur, Hôpital Bichat, 46 rue Henri Huchard 75018, Paris cedex 18, France
O Silbermann Hoffman, Service d'Imagerie Médicale et de Radiodiagnostic, Hôpital Bichat

Correspondence to: Dr Goubier, 70 avenue Galois, 92340, Bourg-la-Reine, France; goubjnal@club-internet.fr

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