CASE REPORT

Persistent groin pain after a bicycle fall

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Accepted 4 December 2015

SUMMARY

Motor scooter handlebar syndrome (MSH) is uncommon. MSH includes groin pain associated with intimal injury to the common femoral artery caused by a direct blow from objects such as a motor scooter handlebar. We describe a case of a 23-year-old man with MSH occurring after a bicycle fall. The diagnosis was performed 5 years after the onset of pain. The patient underwent endovascular surgery and made a rapid recovery. Postoperatively, he was free of symptoms. This case highlights the difficulty of recognising this syndrome.

BACKGROUND

We describe a case of motor scooter handlebar syndrome (MSH). This syndrome includes groin or limb pain associated with intimal injury to the common femoral artery following a direct anteroposterior compression of this artery from objects such as a motor scooter handlebar.^{1–3} MSH may occur at any age.^{1–7} Men seem to be more affected.¹ MSH is uncommon and rarely recognised.^{1–2} In this case, diagnosis was performed 5 years after the onset of the symptoms, through careful attention to the patient's medical history, which evoked intermittent claudication. This case highlights the importance of considering a possible arterial injury when consulting a patient suffering pain after blunt trauma, as the treatment for this type of injury is effective.

CASE PRESENTATION

A 23-year-old man presented reporting of a 5-year history of right groin pain, beginning soon after a bicycle fall. The patient's right groin struck the handlebars in the process. His pain was described as 'feeling of tightness' spreading to his right thigh and sometimes to his right calf and ankle. Pain was exacerbated by running and disappeared with rest. The patient, who was once quite athletic, had been compelled to stop running, dancing and performing gymnastics.

The patient had been smoking one pack of cigarettes per day for 5 years. In his medical history, we noticed a mechanical chronic lower back pain and frequent soft bowel movements since adolescence. He had taken no medication.

The patient had seen several specialists, but none—neither his general practitioner, nor osteopathic physician, nor rheumatologist, nor his gastroenterologist—could diagnose the origin of his pain, despite several imaging tests. The radiographs of the pelvis and hip were normal, as were the ultrasound images. The pelvic MRI showed nothing but a tenosynovitis of the right gluteus medius muscle. Assuming an intestinal origin of the pain, a

colonoscopy with biopsies was also performed. Histology showed signs of acute ileitis and colitis with shallow ulcers, compatible with Crohn's disease, but there was no epithelioid granuloma.

No treatment (eg, medication, osteopathic manipulative treatment, or physical therapy) could ease the patient's pain.

On examination, the right thigh was a little smaller than the left. The patient was somewhat tender to palpation and stretching of the right gluteus medius muscle. We also noticed hypoaesthesia in the lateral areas of the right thigh and calf. The vascular examination of the right limb revealed the absence of the right dorsalis pedis and popliteal pulses. No vascular sounds were heard.

DIFFERENTIAL DIAGNOSIS

In light of the examination and investigations performed over the past 5 years, pain of musculoskeletal, neurogenic or intestinal origin was unlikely. The characteristics of the pain and the absence of distal pulses suggested an intermittent claudication.

INVESTIGATIONS

The patient underwent duplex Doppler ultrasonography, which revealed a decreased blood-flow velocity in the right external iliac artery. After the ultrasound procedure, a lower limb CT angiography was performed (figure 1). Findings were consistent with a short, 2 cm occlusion of the distal right external iliac artery, without intimal disruption or external compression. The downstream arteries were normal.

TREATMENT

An endovascular stent graft was placed inside the external iliac artery. The postoperative course was uneventful.

OUTCOME AND FOLLOW-UP

Postoperatively, all the patient's pulses were palpable, and he was free of symptoms. He was treated with aspirin (160 mg/day) for 3 months. The return to running was gradual and painless, and 12 months after repair, the patient had almost fully returned to his normal activities and could run for an hour without any pain.

DISCUSSION

The patient had complained of groin pain for many years. At no time was the diagnosis of artery occlusion considered, despite his characteristics of the pain (tightness that spread to the right lower limb and occurred with running and disappeared with rest), which suggested intermittent claudication.

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To cite: Luu S-C, Jacques N, Jost D, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2015-211813

Figure 1 CT angiography showing a short occlusion of the distal right external iliac artery (yellow arrow), without intimal disruption or external compression. The downstream arteries were normal. Also seen is the presence of a small collateral artery network (red arrow) that overcomes the external iliac artery occlusion.

Within this context, systematic palpation of his distal pulses could have led to the right diagnosis. MSH is uncommon and rarely recognised.^{1 2} The commonest mechanism of injury appears to be a direct blow from a handlebar to the common femoral artery or the external iliac artery, compressing the artery against the underlying superior pubic ramus and femoral head, because of its superficial position and its relative immobility.^{1 4} This kind of vascular lesion is rare, and injuries in the absence of fractures are even more uncommon; most are due to penetrating mechanisms: only 5% of lower extremity vascular injuries are blunt injuries without fractures.^{1 3–5}

Direct anteroposterior compression of these arteries has been documented not only from motor scooter handlebars but also from tennis balls⁴ and seat belts,³ and after a fall from a height of 6–8 m.¹

Diagnosis is sometimes late, not only because of this syndrome's rarity leading to difficulty in recognising it, but also because symptoms may be delayed for months or years.^{1 6}

The clinical presentation includes groin pain frequently associated with groin swelling, ecchymosis, or haematoma. The patient may develop intermittent claudication,⁶ and, 75% of the time, distal pulses are absent.^{2 4} Arterial auscultation can reveal femoral bruit or thrill.^{3 7} The ankle/brachial index may decrease.^{2 4 6 7} In general, clinical signs of acute limb ischaemia are absent.^{1 2} An unusual case of haemorrhagic shock has been reported; the shock was due to an active bleed from a third-order branch of the proximal left superficial femoral artery, associated with a stable non-displaced right acetabular fracture following a motorcycle accident.⁵ Some authors propose that atherosclerotic plaque, in the context of blunt trauma, predisposes to disruption of the arterial intima by increasing the rigidity of the vessel.^{2 4}

Diagnosis is often confirmed by conventional lower limb arteriography^{1–7} or CT arteriography.^{4 5} Angiography may be preceded by Doppler ultrasonography.^{3 7}

There is no clear consensus on the optimal management of blunt traumatic arterial injury.⁷ Operative repair is generally indicated (resection and anastomosis with autologous or synthetic grafts).^{1 2} The patient with haemorrhagic shock in Skinner's case report was saved by endovascular embolisation, which permitted the occlusion of the bleeding vessel with gel foam material, followed by micro-coils.⁵ After treatment of the arterial lesion, symptoms usually disappear, pulses are palpable again, and the ankle/brachial index normalises.^{1–7}

When open surgical reconstruction occurs, a contused arterial segment may be seen.^{4 7} Histology shows intimal disruption frequently associated with intramural haematoma or thrombus, resulting in occlusion of the artery.^{1–7}

In conclusion, MSH is often undetected. It includes post-traumatic groin pain spreading to the lower limb, often

Learning points

- ▶ Posttraumatic pain may come from arterial injury.
- ▶ MSH is usually presented with groin pain resulting from a direct blow to the external iliac artery following a motor scooter accident.
- ▶ This syndrome should be considered in intermittent claudication occurring after an accident involving bicycles.
- ▶ The treatment is usually surgical and produces good haemodynamic and clinical results.

occurring while walking or running and receding with rest. Distal pulses are usually absent. Diagnosis can be performed if intermittent claudication is recognised and distal pulses are systematically palpated.

Acknowledgements The authors thank Dr Cecil-Emmanuel Astaud for his contribution and outstanding skill during all these years in our department.

Contributors S-CL examined the patient. S-CL and NJ performed the diagnosis and wrote the paper. DJ wrote the paper. J-PT validated the corrected paper.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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