



PRACTICE

10-MINUTE CONSULTATION

Groin pain in athletes

Rachel Rolph *general surgery registrar*¹, Catrin Morgan *core surgical trainee*¹, Gareth Chapman *general practitioner*², Simon Marsh *consultant general surgeon*^{3 4}

¹Guys and St Thomas NHS Foundation Trust, London, UK; ²Ball Tree Surgery, West Sussex, UK; ³Colchester Hospitals University Foundation NHS Trust, Colchester, UK; ⁴The Gilmore Groin and Hernia Clinic, London, UK

What you need to know

- Inguinal disruption is an overuse injury associated with sports or activities that involve twisting, sprinting, and kicking movements
- Consider inguinal disruption in athletes presenting with groin pain and tenderness on palpation over the inguinal ligament or pubic tubercle and no hernia
- Most patients improve over six to eight weeks with conservative management, including activity modification, physiotherapy, and core/adductor strengthening exercises

A 33 year old man who plays sport regularly complains of pain in the right groin over two months. It is worse on the day after exercise, especially on turning to get out of bed.

Groin pain accounts for one in 10 patient visits to a sports injury clinic.^{1 2} Inguinal or groin disruption (Gilmore’s groin) is a common cause in athletes. It is caused by tears in the conjoint tendon, the oblique muscles, and the inguinal ligament, which result from overuse. Inguinal disruption is also incorrectly referred to as a “sportsman’s hernia,” a misleading term as there is no hernia. Young men are commonly affected (median age 26-28 years),^{2 3} although about 5% of cases are seen in women. The condition is sometimes misdiagnosed in primary care, particularly among amateur athletes, when it is not suspected.⁴

What you should cover

Understanding the anatomy of the groin (fig 1), and the location and pattern of the pain is important in making a diagnosis.

History

You might ask

Where is the pain and what exacerbates the symptoms?

The pain is commonly localised to the lower abdomen or inguinal region, often close to the pubic tubercle. Pain may radiate to the perineum and inner thigh or across the midline.⁵ About one in five patients report bilateral symptoms.⁶ Pain below the inguinal ligament and radiating to the buttock is not

characteristic of inguinal disruption. Consider alternative diagnoses related to the hip (box 1).

Box 1: Differential diagnosis for groin pain in athletes

- Inguinal hernia
- Adductor muscle injuries
- Osteitis pubis
- Pubic symphysisitis
- Stress fractures (pubic ramus, femoral neck)
- Femoral acetabular impingement
- Hamstring injury

The pain is typically worse after activity, and over time may limit sporting activities. Actions such as rising from a low position, coughing, or sneezing may also exacerbate the pain. The combination of the history and the absence of a lump excludes a simple hernia.

What sports do you participate in?

Ask about sports or activities that involve twisting, sprinting, or kicking movements, for example rugby, football, hockey, or tennis. Patients often play at a professional or semi-professional level, although amateur players are also affected.³ About a third of patients may report an acute injury that precipitated the pain.⁷

Examination

Explain the examination steps so that the patient knows what to expect. Ask them to undress to expose the groin. Be mindful of privacy during examination.

Assess the patient when standing. Compare both sides and look for any obvious lumps. Ask the patient to cough while looking for a bulge in the groin. A bulge during coughing makes inguinal hernia more likely.

On palpation through the scrotum, point tenderness and dilation at the superficial inguinal ring is characteristic of the condition and will replicate patient symptoms. There may be associated

tenderness on the pubic tubercle at the point of insertion of the conjoint tendon and/or palpable tenderness over the deep inguinal ring (fig 1).⁵

Examine the hip joints for any pathology. Adductor tendon injuries often co-exist.^{5,8} These patients will have tenderness in the upper thigh and pain on resisted abduction.

What you should do

Explain the condition and management to your patient

If findings suggest inguinal disruption, explain to the patient that the injury is related to overuse of muscles and tendons in the groin. Reassure them that the pain should typically resolve with conservative measures involving rest initially and then individualised rehabilitation, and they can gradually return to sports over a period of six to eight weeks.³ Figure 2 depicts management of inguinal disruption. Advise the patient to reduce sporting activities and avoid movements that precipitate the pain until it settles.

The evidence base is limited for treatments of inguinal disruption, with few high quality studies.³ Consider non-steroidal anti-inflammatory medications and simple analgesics for pain relief if it causes severe discomfort.

Professional physiotherapy after the acute period can aid recovery.⁶ Refer the patient for exercise therapy to strengthen adductor and abdominal muscles and to correct instability across the pelvic girdle. This improves pain and may lead to a more rapid return to sports compared with passive physiotherapy.⁹

Referral

Refer patients to a sports medicine or orthopaedic clinic if the diagnosis is uncertain and no hernia is present, or where conservative measures have failed to improve symptoms. Professional sports people and those for whom symptoms are having a considerable impact on quality of life may prefer early referral for specialist management. Some patients benefit from surgery, either open or laparoscopic, to reinforce the affected area.¹⁰ Corticosteroid and platelet-rich plasma injections may be used in specialist centres to reduce symptoms, although evidence is limited.¹¹

Postoperative recovery involves a programme of rehabilitation physiotherapy to return to full sporting activities within four to six weeks at the professional level and 12 weeks for amateur sportspeople.⁵

Education into practice

- How would you differentiate between inguinal disruption and an inguinal hernia?
- How would you explain the anatomy and mechanism of pain to a patient with groin pain?

How patients were involved in the creation of this article

A professional and an amateur athlete previously diagnosed with inguinal disruption helped us draft the section on what doctors should advise patients. They both commented on the usefulness of a simple anatomy diagram to help understand their injury. We have included this in the article. We are grateful for their input.

Acknowledgments: Special thanks to Mr Jerry Gilmore for his guidance, support, encouragement, and enthusiasm.

We would like to acknowledge Dr Rebecca A Fisher, a foundation doctor at Gloucestershire NHS Foundation Trust for creating the anatomy illustration of the groin.

Competing interests: The BMJ has judged that there are no disqualifying financial ties to commercial companies. The authors declare the following other interests: none.

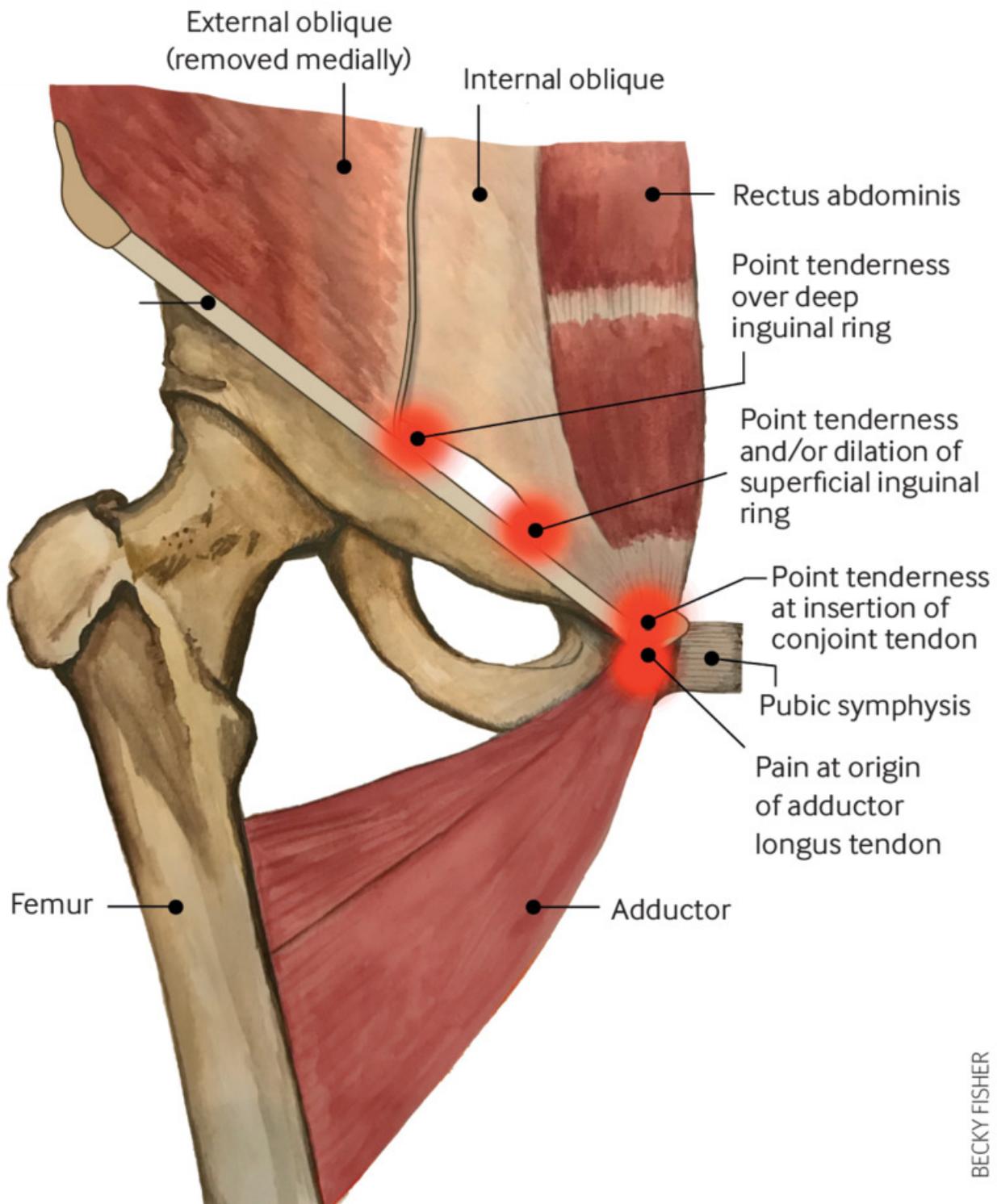
Further details of The BMJ policy on financial interests are here: <https://www.bmj.com/about-bmj/resources-authors/forms-policies-and-checklists/declaration-competing-interests>

Provenance and peer review: commissioned, based on an idea from the authors

- 1 Gilmore J. Groin pain in the soccer athlete: fact, fiction, and treatment. *Clin Sports Med* 1998;17:787-93. vii. 10.1016/S0278-5919(05)70119-8 9922902
- 2 Suarez JC, Ely EE, Mutnal AB, et al. Comprehensive approach to the evaluation of groin pain. *J Am Acad Orthop Surg* 2013;21:558-70.23996987
- 3 Sermer A, van Eijck CH, Beumer BR, Hölmich P, Weir A, de Vos RJ. Study quality on groin injury management remains low: a systematic review on treatment of groin pain in athletes. *Br J Sports Med* 2015;49:813. 10.1136/bjsports-2014-094256 25633830
- 4 Banks AJ, Malimson PD. Wrong diagnosis in athletes. *Br J Sports Med* 1982;16:101. 10.1136/bjism.16.2.101 7104556
- 5 Sheen AJ, Stephenson BM, Lloyd DM, et al. 'Treatment of the sportsman's groin': British Hernia Society's 2014 position statement based on the Manchester Consensus Conference. *Br J Sports Med* 2014;48:1079-87. 10.1136/bjsports-2013-092872 24149096
- 6 King E, Franklyn-Miller A, Richter C, et al. Clinical and biomechanical outcomes of rehabilitation targeting intersegmental control in athletic groin pain: prospective cohort of 205 patients. *Br J Sports Med* 2018;52:1054-62. 10.1136/bjsports-2016-097089 29550754
- 7 Gilmore J. Groin disruption in sportsmen. In: Kurzer M, Kark A, Wantz G, eds. *Surgical Management of Abdominal Wall Hernias*. Martin Dunitz, 1999. 151-7.
- 8 Akermark C, Johansson C. Tenotomy of the adductor longus tendon in the treatment of chronic groin pain in athletes. *Am J Sports Med* 1992;20:640-3. 10.1177/036354659202000604 1456357
- 9 Almeida MO, Silva BN, Andriolo RB, Atallah AN, Piccini MS. Conservative interventions for treating exercise-related musculotendinous, ligamentous and osseous groin pain. *Cochrane Database Syst Rev* 2013;6:CD009565. 10.1002/14651858.CD009565.pub2 23740671
- 10 Dimitrakopoulou A, Schilders E. Sportsman's hernia? An ambiguous term. *J Hip Preserv Surg* 2016;3:16-22. 10.1093/jhps/hnv083 27026822
- 11 Hamid MS, Yusof A, Mohamed Ali MR. Platelet-rich plasma (PRP) for acute muscle injury: a systematic review. *PLoS One* 2014;9:e90538. 10.1371/journal.pone.0090538 24587389

Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to <http://group.bmj.com/group/rights-licensing/permissions>

Figures



BECKY FISHER

Fig 1 Soft tissue anatomy of the inguinal region relevant to groin disruption

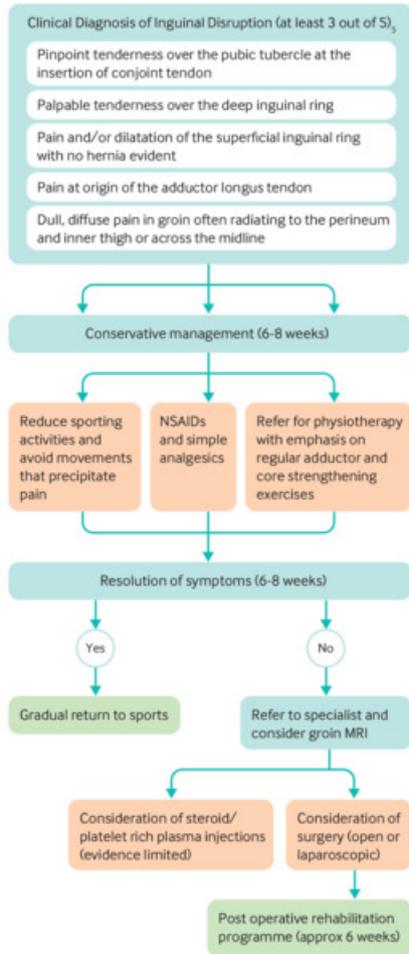


Fig 2 Management of inguinal disruption

BMJ: first published as 10.1136/bmj.m559 on 4 March 2020. Downloaded from <http://www.bmj.com/> on 15 March 2020 by Richard Alan Pearson. Protected by copyright.