Abstract SMWJC21

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Clinical examination tests for athletes with inguinal-related groin pain: inter-examiner reliability and prevalence of positive tests

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Introduction and purpose: Inguinal-related groin pain (IRGP) is an internationally agreed term for groin pain in the inguinal canal without the presence of an inguinal hernia. The classification IRGP is based on injury history and clinical examination findings (palpation/resistance test pain).[1] Scientific support for any specific examination test is limited. Aims were to: 1) evaluate the inter-examiner reliability of clinical examination findings in athletes with groin pain, and 2) identify the prevalence of positive clinical tests in athletes with IRGP.

Methods: Male athletes (18-40 years) with longstanding groin pain were prospectively recruited between 03-2019 and 10-2020 at a specialised sports medicine hospital. Two examiners performed history taking and standardized clinical examination blinded to each other's findings. The clinical examination protocol consisted of 7 abdominal palpation (figure 1) and 6 resistance tests. The inter-examiner reliability was calculated using Cohen's Kappa statistic (κ).

Results: Forty-four athletes were included (61 symptomatic sides). Inter-examiner reliability of pain on palpation of the abdominal muscles (grouped) was substantial (κ=0.61, 95%CI: 0.41–0.81) and pain during scrotal invagination (grouped) was moderate (κ=0.54, 95%CI: 0.31–0.76). Kappa values for all specific palpation pain provocation tests were lower (κ= 0.35–0.49). Inter-examiner reliability for assessing posterior wall structure (firm/soft) was slight (κ= 0.01, 95%CI: -0.38–0.40), and for posterior wall bulging (yes/no) was fair (κ= 0.29, 95%CI: 0.05–0.52). Inter-examiner reliability for abdominal resistance tests varied from fair to substantial (κ=0.35–0.72). In athletes with IRGP, pain on palpation during scrotal invagination (grouped) was the most prevalent positive test (78%), mostly when athletes performed a Valsalva maneuver (66%). Abdominal resistance tests were positive in 20-48% of athletes presenting with IRGP.

Conclusion: The inter-examiner reliability of abdominal palpation and resistance tests as pain provocation tests varies from fair to substantial. Recognizable injury pain during scrotal invagination is the most prevalent positive test, whilst abdominal resistance tests are only positive in less than 1 in every 2 athletes with IRGP.

Discussion/recommendations: There is no single perfect clinical examination test to classify athletes with IRGP. Knowing limitations of specific clinical examination tests can assist with a more accurate classification of IRGP.

Word count: 349

Disclosure: None

Literature:

1 Weir A, Brukner P, Delahunt E, et al. Doha agreement meeting on terminology and definitions in groin pain in athletes. *Br J Sport Med* 2015; 49(12):768–774.

Abdominal palpation tests of the inguinal canal:

Pubic tubercle (figure 1a)
Examiner palpates the lateral/craniolateral border of the pubic tubercle at the insertions of the inguinal ligament and conjoint tendon (*score: pain*)

Inguinal ligament (figure 1b)
Examiner palpates the medial 0.5-3cm of the inguinal ligament. *(score: pain)*

Conjoint tendon
Examiner palpates the medial 0.5-3cm of the conjoint tendon. *(score: pain)*

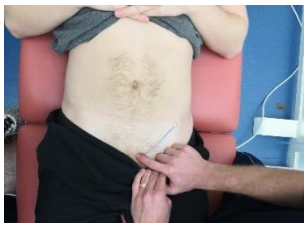

Figure 1a

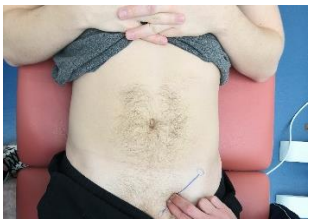

Figure 1b

Palpation tests during scrotal invagination of the inguinal canal (figure 1c):

External ring
Examiner inverts the scrotum with the index finger and palpates the external inguinal ring approximately 1 cm craniolateral to the pubic tubercle. *(score: pain and size)*

Conjoint tendon
Examiner palpates the conjoint tendon during invagination of the inguinal canal, directly medial after passing the external inguinal ring. *(score: pain)*

Posterior wall palpation
Examiner palpates the posterior wall of the inguinal canal during invagination. *(score: soft/firm)*

Bulging/Valsalva
Examiner palpates the posterior wall and askes the patient to perform a Valsalva maneuver by inhaling deeply first and then to exhale forcefully against the backside of his hand (without letting the air escape). Bulging will be scored positive if the examiner feels “ballooning” of the posterior wall during Valsalva. *(score: bulging y/n and pain)*

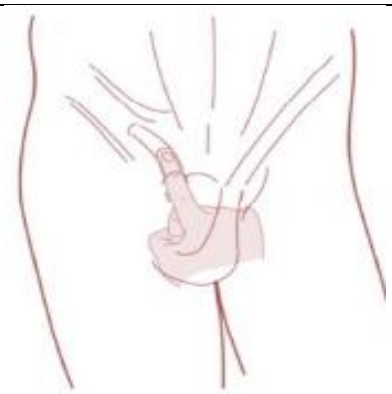

Figure 1c