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The Treatment of Inguinal Pain

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INTRODUCTION

The etiology of inguinal pain can be very straightforward to diagnose if a hernia is palpated in the groin. This article also discusses what to do when a hernia is not palpated. Although hernias are at the top of the list for patients who have groin pain, the possible diagnoses comprise a lengthy list (Table). This article reviews these entities and their treatment, but due to complexity, groin pain after groin surgery will not be discussed.

HISTORY

It is important to take a thorough history.[1] If the patient reports a bulge in his groin, the history is focused towards a hernia. It is important to note whether or not a patient had a major lifting or work-related injury, serious coughing, straining on urination, or significant nocturia. Urologic causes of groin pain are usually associated with concomitant perineal or scrotal pain, and isolated inguinal pain is rarely from a urologic source. Constipation could also lead to a hernia or muscle strain, tendonitis, or avulsion fracture. These symptoms, as well as the groin pain, need to be treated. Pain that occurs later in the day, after prolonged standing, or with straining on defecation is consistent with a hernia. Pain at the onset of walking or any straining activity is more likely a muscle, ligament, or joint problem, or a sports hernia. If pain improves with walking or activity, a muscle, ligament, or joint problem is more likely. Nerve entrapment syndromes can be diagnosed by pain related to a dermatome of the specific nerve. A history of compression in the area of the nerve can also lead to the diagnosis of nerve entrapment syndromes. Certainly, hernias can cause nerve entrapment syndromes; and often patients with hernias will have radiation of pain in one of the nerve dermatomes. If pain radiates from the back, it is more likely to be lumbar disc disease or other back pathology as opposed to being from a primarily groin related medical problem. In patients who are physically very active, a sports hernia will come to the top of the list of possibilities. A sports hernia occurs from athletic activity, notably common among soccer and ice hockey athletes. Sports hernia patients typically present with a history of insidious onset of activity-related pain. The pain is unilateral, ''deep'' groin pain that lessens with rest and is exacerbated by strenuous activities. Although several cases have been reported in women,[1] sports hernias occur almost exclusively in men. It is a diagnosis of exclusion, as most patients have symptoms for several months and become frustrated as a result of the vague physical and diagnostic findings. In one retrospective study the median time to presentation was 9 months.[2] Occasionally, minor bulging may be found on physical examination by an expert examiner, but often a hernia or tear can only be identified during operative exploration. Despite the typical absence of a palpable hernia, patients can have pain accentuated by resisted adduction and pubic point tenderness. The history of possible urologic, intra-abdominal, or joint related conditions, particularly hip pathology, is also important in determining the etiology of groin pain.

PHYSICAL EXAMINATION

On physical examination, any radiation of pain should be clarified to confirm neurologic distribution of pain. Exact points of tenderness should be noted, such as tenderness on the areas of the external inguinal ring, pubic tubercle, along the adductor tendons or muscle, pubic symphysis, directly in the groin, or more laterally towards the interior superior iliac spine. Any bulging should also be noted, including exactly where it is, such as through the external ring, below the ilioinguinal ligament, above the inguinal ligament, or medial to the anterior superior iliac spine. It is also important to look for slight bulging, laxity, or weakness above the ilioinguinal ligament which could be indicative of a sports hernia. Ilioinguinal tenderness or tenderness that is

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Table. Differential Diagnosis of Inguinal Pain

- Hernia: direct and indirect femoral
- Ligament and muscle strain: adductor tendon strain, iliopsoas strain (or tendonitis), iliopsoas bursitis, avulsion and fracture of the pelvis including rectus femoris, and sartorius adductor muscles
- Nerve entrapment: obturator femoral iliohypogastric, tentative femoral ilioinguinal and lateral femoral cutaneous
- Osteitis pubis
- Stress fracture of the femoral neck or pubic ramus
- Hip joint pathology
- Athletic pubalgia or ''sports hernia''
- Urinary conditions: urinary tract infections, renal calculi, prostatitis, testicular disorders, and epididymitis
- Lumbar disc disease
- Intra-abdominal conditions: appendicitis, diverticulosis, adhesions, and inflammatory bowel disease
- Prior groin surgery

superficial to the external inguinal ring, pubic tubercle tenderness, or adductor tendon origin tenderness could indicate a sports hernia.

A prostate examination is important to rule out prostatitis, as well as a physical examination of the testicles to rule out epididymitis.

EVALUATION

Laboratory evaluation will depend upon what is found on physical examination (Figure). If an obvious hernia is detected, no further evaluation is necessary, as long as the history is consistent with hernia pain. For patients without hernia defect palpated, a urine analysis and plain hip-series x-rays should be obtained to identify urologic or obvious bony or joint abnormalities as the cause of pain. Provocation ultrasound is the next step for possible occult hernia. Magnetic resonance imaging (MRI) is an excellent test for most patients with chronic groin pain and can identify adductor tendon muscle abnormalities, as well as iliopsoas strains or tendonitis and bursitis.[3] MRI arthrography is the preferred technique for evaluation of acetabular labral pathology.[4] Avulsion fractures may be seen on ultrasound; however, MRI is also a useful modality to determine this abnormality. For pain at the pubic tubercle a bone scan may be

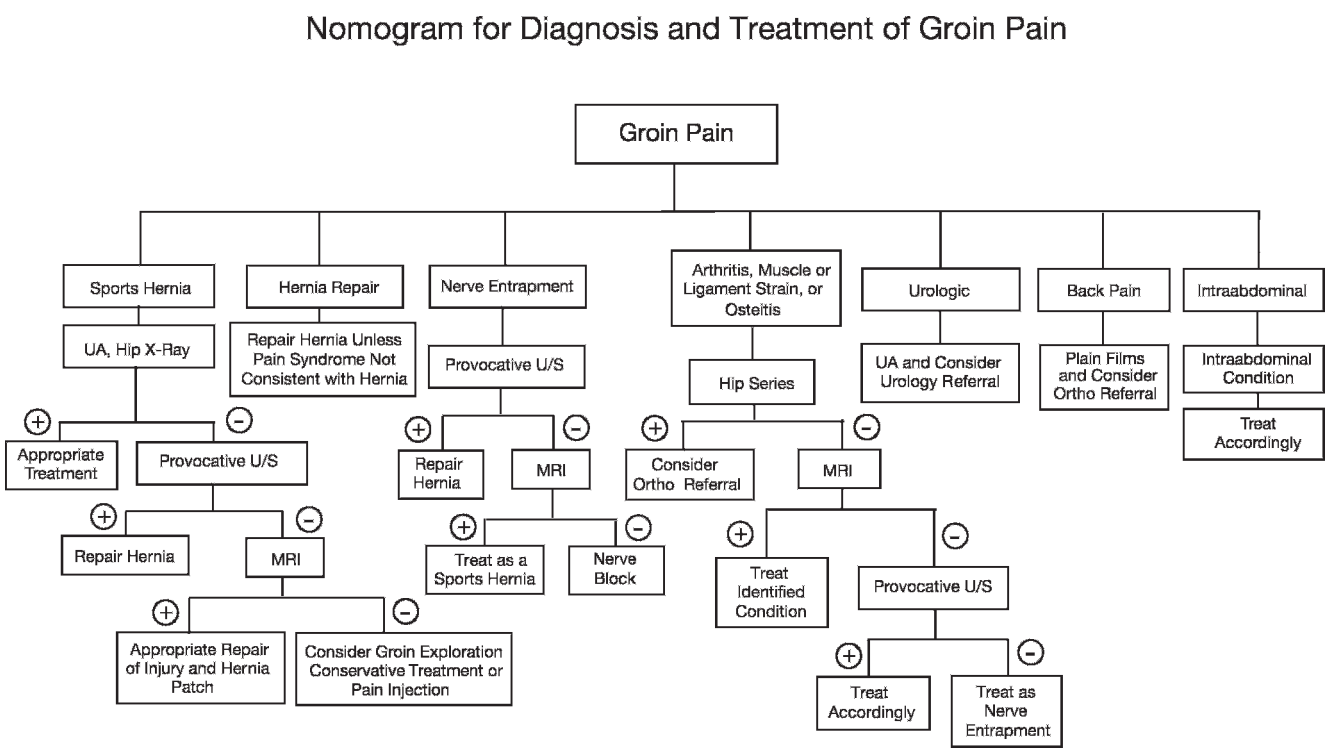

Figure. Nomogram for diagnosis and treatment of groin pain. UA = urine analysis; U/S = ultrasound; MRI = magnetic resonance imaging.

performed; however, MRI can show edema in the area which confirms osteitis pubis. Stress fractures can also be seen on MRI.

TREATMENT

Treatment will depend upon the findings from the work-up. When obvious hernias are involved, and no other etiology is identified, primary treatment should be hernia repair. After all diagnostic testing for possible hernia has not shown a hernia in the groin area, treatment will depend upon the rest of the findings of the work-up. Nerve entrapment syndromes, particularly with hernia, should be treated by hernia repair alone, although if pain continues further work-up will be necessary. Ligament and muscle strains, particularly those involving the adductor muscle and tendon, iliopsoas strain or tendonitis or bursitis, avulsion fractures, and osteitis pubis can be treated with physical therapy, stretching, and strengthening protocols. Treatment can also include ice and non-steroidal medications. In addition, osteitis pubis may be improved with local steroid injections. When adductor tendon strains have continued and become chronic, lasting longer than 3 months to 1 year, treatment by Meyers and colleagues has included release of the adductor tendon and repair of the pelvic floor with a hernia patch.[5] Sports hernias are usually repaired by either open or laparoscopic inguinal hernia repair. Operative technique involves placement of a polypropylene or biologic mesh over the area of the strain or defect, thus relieving the pressure and improving inflammatory response in the area.[6,7] The most commonly found pathologic area of weakness or defect is in the posterior inguinal wall along the transversalis fascia.[8] Nerve entrapment syndromes can be treated by nerve blocks. In obese patients where physical examination is limited, provocative ultrasound is extremely useful. Occult hernia can be identified by provocative ultrasound but may require groin exploration. Stress fractures and other hip joint pathology should be treated by orthopedic surgeons.

CONCLUSION

Groin pain encompasses a large number of possible etiologies. Even after thorough work-up, the etiology for groin pain can be very difficult to elucidate. Over the past few years we have made great strides in identifying the etiology of groin pain for many patients, particularly with the era of provocative ultrasound and MRI. New treatments, particularly for sports hernias, have greatly improved outcomes.

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