Surgery for Athletic Pubalgia

**Policy Number:** 7.01.142  **Last Review:** 9/2016
**Origination:** 9/2014  **Next Review:** 9/2017

**Policy**
Blue Cross and Blue Shield of Kansas City (Blue KC) will not provide coverage for Surgery for Athletic Pubalgia. This is considered investigational.

**When Policy Topic is covered**
Not Applicable

**When Policy Topic is not covered**
Surgical treatment of athletic pubalgia (also known as Gilmore groin, osteitis pubis, pubic inguinal pain syndrome, inguinal disruption, slap shot gut, sportsmen groin, footballers groin injury complex, hockey groin syndrome, athletic hernia, sports hernia or core muscle injury) is considered investigational.

**Description of Procedure or Service**

<table>
<thead>
<tr>
<th>Populations</th>
<th>Interventions</th>
<th>Comparators</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals:</td>
<td>Interventions of interest are:</td>
<td>Comparators of interest are:</td>
<td>Relevant outcomes include:</td>
</tr>
<tr>
<td>▪ With athletic</td>
<td>▪ Surgical repair of defects</td>
<td>▪ Conservative therapy</td>
<td>▪ Symptoms</td>
</tr>
<tr>
<td>pubalgia</td>
<td></td>
<td></td>
<td>▪ Functional outcomes</td>
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<td></td>
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<td>▪ Treatment-related morbidity</td>
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Athletic pubalgia, commonly known as sports hernia, is characterized by disabling activity-dependent lower abdominal and groin pain that is not attributable to any other cause. Athletic pubalgia is most frequently diagnosed in high-performance male athletes, particularly those who participate in sports that involve rapid twisting and turning such as soccer, hockey, and football. Alternative names include Gilmore groin, osteitis pubis, pubic inguinal pain syndrome, inguinal disruption, slap shot gut, sportsmen groin, footballers groin injury complex, hockey groin syndrome, athletic hernia, sports hernia and core muscle injury. For patients who fail conservative therapy, surgical exploration, and repair of any defects identified in the muscles, tendons or nerves has been proposed.

The evidence for surgical repair of defects in individuals who have athletic pubalgia includes 1 small randomized controlled trial (RCT) and a number of uncontrolled case series. Relevant outcomes are symptoms, functional outcomes, and treatment-related morbidity. The single RCT, which used laparoscopic total
extraperitoneal repair with mesh reinforcement behind the pubic bone/posterior wall of the inguinal canal, is insufficient to determine outcomes of surgical treatment for this relatively common condition. In addition, there is no consensus yet on the etiology or treatment approach for sports hernia, and there are numerous surgical treatments. Additional trials that select patients with specific anatomic features and that use a standard surgical approach are needed to define the benefit for specific patient subgroups. The evidence is insufficient to determine the effects of the technology on health outcomes.

Background
Athletica pubalgia is thought to be a cause of groin pain in athletic people. It is a poorly defined condition, for which there is not a consensus regarding the cause and/or treatment. (1) Some believe athletic pubalgia to be an occult hernia process, a prehernia condition, or an incipient hernia, with the major abnormality being a defect in the transversalis fascia, which forms the posterior wall of the inguinal canal. Another theory is that injury to soft tissues that attach to or cross the pubic symphysis is the primary abnormality. The most common of these injuries is thought to be at the insertion of the rectus abdominis onto the pubis, with either primary or secondary pain arising from the adductor insertion sites onto the pubis. It has been proposed that muscle injury leads to failure of the transversalis fascia, with a resultant formation of a bulge in the posterior wall of the inguinal canal. (1) Osteitis pubis (inflammation of the pubic tubercle) and nerve irritation/entrapment of the ilioinguinal, iliohypogastric, and genitofemoral nerves are also believed to be sources of chronic groin pain.

An association between femoroacetabular impingement (FAI) and athletic pubalgia has also been proposed. It is believed that if FAI presents with limitations in hip range of motion, compensatory patterns during athletic activity may lead to increased stresses involving the abdominal obliques, distal rectus abdominis, pubic symphysis, and adductor musculature. A systematic review of 24 studies that examined the co-occurrence of FAI and athletic pubalgia found an overlap of the 2 conditions that ranged from 27% of hockey players to 90% of collegiate football players who presented with hip and groin pain.(2) Surgery for athletic pubalgia has been performed concurrently with treatment of FAI, or following FAI surgery if symptoms did not resolve.

A diagnosis of athletic pubalgia is based primarily on history, physical exam, and imaging. The clinical presentation will generally be one of gradual onset of progressive groin pain associated with activity. Physical exam will not reveal any evidence for a standard inguinal hernia or groin muscle strain. Imaging with MRI or ultrasound is generally done as part of the workup. In addition to exclusion of other sources of lower abdominal and groin pain (eg stress fractures, femoroacetabular impingement, labral tears), imaging may identify injury to the soft tissues of the groin and abdominal wall. (3)

Many injuries will heal with conservative treatment, which includes rest, icing, nonsteroidal anti-inflammatory drugs, and rehabilitation exercises. A physical therapy program that focuses on strength and coordination of core muscles
acting on the pelvis may improve recovery. In a 1999 study, 68 athletes with chronic adductor-related groin pain were randomized to 8 to 12 weeks of an active training program (physical therapy, PT) that focused on strength and coordination of core muscles, particularly adductors (PT+), or to standard physical therapy without active training (PT-). (4) At 4 months after treatment, 68% of patients in the active training group had returned to sports without groin pain compared with 12% in the PT- group. At 8 to 12 year follow-up, 50% of athletes in the active training group rated their outcome as excellent compared with 22% in the PT- group. (5) For in-season professional athletes, injections of corticosteroid or platelet-rich plasma, or a short corticosteroid burst with taper have also been used.

**Surgical Treatment of Athletic Pubalgia**

Surgical treatment is typically reserved for patients who have failed at least 3 months of conservative treatment. One approach consists of either open or laparoscopic sutured hernia repair with mesh reinforcement of the posterior wall of the inguinal canal. Laparoscopic procedures may use either a transabdominal preperitoneal or a totally extraperitoneal (TEP) approach. A variety of musculotendinous defects, nerve entrapments, and inflammatory conditions have been observed with surgical exploration. Meyers proposes that any of the 17 soft tissues that attach or cross the pubic symphysis can be involved, leading to as many as 26 surgical procedures and 121 different combinations of procedures that address the various core muscle injuries. (5) The objective of this approach to surgical treatment is to stabilize the pubic joint by tightening or broadening the attachments of various structures to the pubic symphysis and/or loosening the attachments or other supporting structures via epimysiotomy or detachment.

Because there are a variety of surgical procedures used to treat athletic pubalgia that have all reported success, it has been proposed that general fibrosis from any type of surgery may act to stabilize the anterior pelvis and thus play a role in improved surgical outcomes.

**Rationale**

This evidence review was created in July 2014 with subsequent literature searches using the MEDLINE database. The most recent literature update was performed through December 13, 2015.

Athletica pubalgia has a variable natural history, with an uncertain time course of the disorder. In addition, pain and functional ability are subjective outcomes and, thus, may be particularly susceptible to placebo effects. Because of these factors, controlled trials are essential to demonstrate the clinical effectiveness of surgical treatment of athletic pubalgia compared with alternatives such as continued medical management. Randomized trials are also important because there may be numerous confounders of outcomes and nonrandomized comparisons are prone to selection bias. Therefore, evidence reviewed for this review focuses on randomized controlled trials (RCTs) and other controlled trials.
Randomized Controlled Trials

**Mesh Alone**
In 2011, Paajanen et al reported a multicenter RCT compared surgical treatment versus conservative therapy in 60 athletes who had suspected sports hernia. Of the 60 (including 31 national-level soccer players), 36 (60%) were totally disabled from their sport and 24 (40%) had a marked limitation in training and competing. For inclusion in the study, the location of pain had to be rostral to the inguinal ligament in the deep inguinal ring at palpation or at the insertion point of the adductor tendons. Exclusion criteria were isolated tendinitis of the adductor muscles or tendons without groin pain rostral to the inguinal ligament, obvious inguinal hernias, or suspicion of inguinal nerve entrapment. Participants had to have the desire to continue sports at the same level as before the groin injury. Pubic bone marrow edema was identified by magnetic resonance imaging (MRI) in 58% of patients. For participants (38%) who had a normal MRI in the pubic area, pain was attributed to insufficiency of the posterior wall of the inguinal canal. After at least 3 months of groin symptoms, patients were randomized into surgical or conservative treatment groups. Conservative treatment included at least 2 months of active physical therapy that focused on improving coordination and strength of core muscles, along with corticosteroid injections and oral anti-inflammatory analgesics. Surgical treatment consisted of laparoscopic total extraperitoneal repair with mesh placed behind the pubic bone and/or posterior wall of the inguinal canal. Ten percent of the patients also underwent open tenotomy of the adductor magnus or longus. Of the 30 surgically treated athletes, 27 (90%) returned to sports activities by 3 months compared with 8 (27%) of the nonoperative group. At 1, 3, 6, and 12 months after treatment, visual analog scale (VAS) scores for pain were significantly lower in the surgically treated group (p<0.001). However, at 12 months, mean VAS scores for pain were less than 2 in both groups and 60% of patients in the nonoperative group were pain-free (23% had undergone surgery, 13% stopped playing the sport).

**Observational Studies**
A number of observational series have reported on outcomes of surgery. However, these studies enrolled variable patient populations and used different surgical techniques. All studies reported that a high percentage of patients returned to full sports activities, but there were no control groups for comparison.

An example of a large case series is a study by Meyers et al (2008) that reported on the surgical treatment of 5218 patients diagnosed with athletic pubalgia. Patients treated with surgery ranged from 11 to 71 years of age; women comprised about 8% of the group. The authors reported that 95.3% of the patients returned to full play within 3 months of surgery. For a subgroup of athletes treated in-season, 90% were able to return to full play within 3 weeks. Adverse surgery-related events included dysesthesias (0.3%), significant hematomas (0.3%), and vein thrombosis (0.1%), all of which resolved within 1 year. It was noted that, in the 5 years before the report, the number of patients diagnosed with athletic pubalgia increased from 8 to 25 per week.
Ongoing and Unpublished Clinical Trials

Some currently unpublished trials that might influence this review are listed in Table 1.

Table 1. Summary of Key Trials

<table>
<thead>
<tr>
<th>NCT No.</th>
<th>Trial Name</th>
<th>Planned Enrollment</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>NCT01876342</td>
<td>Total ExtraPeritoneal (TEP) Versus Open Minimal Suture Repair for Treatment of Sportsman’s Hernia/Athletic Pubalgia: A Randomized Multi-center Trial</td>
<td>60</td>
<td>Dec 2016</td>
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<tr>
<td>NCT02297711</td>
<td>Total ExtraPeritoneal (TEP) Versus Open Minimal Suture Repair for Treatment of Sportsman’s Hernia/Athletic Pubalgia: A Randomized Multi-center Trial</td>
<td>100</td>
<td>Oct 2015</td>
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<tr>
<td>NCT00934388</td>
<td>A Randomised, Blinded Study on Laparoscopic Mesh Reinforcement for Chronic Groin Pain</td>
<td>80</td>
<td>Dec 2015</td>
</tr>
</tbody>
</table>

NCT: national clinical trial.

Summary of Evidence

The evidence for surgical repair of defects in individuals who have athletic pubalgia includes 1 small randomized controlled trial (RCT) and a number of uncontrolled case series. Relevant outcomes are symptoms, functional outcomes, and treatment-related morbidity. The single RCT, which used laparoscopic total extraperitoneal repair with mesh reinforcement behind the pubic bone/posterior wall of the inguinal canal, is insufficient to determine outcomes of surgical treatment for this relatively common condition. In addition, there is no consensus yet on the etiology or treatment approach for sports hernia, and there are numerous surgical treatments. Additional trials that select patients with specific anatomic features and that use a standard surgical approach are needed to define the benefit for specific patient subgroups. The evidence is insufficient to determine the effects of the technology on health outcomes.

Practice Guidelines and Position Statements

The American Academy of Orthopaedic Surgeons (AAOS) posted an online educational document in 2010 on sports hernia (athletic pubalgia).(13) AAOS advised that “in many cases, 4 to 6 weeks of physical therapy will resolve any pain and allow an athlete to return to sports. If, however, the pain comes back when you resume sports activities, you may need to consider surgery to repair the torn tissues.”

British Hernia Society

The British Hernia Society published a 2014 position statement on the treatment of sportsman’s groin.(14) Based on a consensus conference, the term inguinal disruption was agreed to be the preferred nomenclature because no true hernia exists. Participants agreed that there was abnormal tension in the groin, particularly around the inguinal ligament attachment and that other findings may include the possibility of external oblique disruption with consequent small tears. It
was noted that other pathologies also account for symptoms of groin pain, including adductor muscle tendinitis, osteitis pubis, and pubic symphysitis. A multidisciplinary approach with tailored physical therapy was recommended as initial treatment, with surgery involving releasing the tension in the inguinal canal and reinforcing it with a mesh or suture repair.

**U.S. Preventive Services Task Force Recommendations**
Not applicable.

**Medicare National Coverage**
There is no national coverage determination (NCD). In the absence of an NCD, coverage decisions are left to the discretion of local Medicare carriers.

References:

**Billing Coding/Physician Documentation Information**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27299</td>
<td>Unlisted procedure, pelvis or hip joint</td>
</tr>
<tr>
<td>49659</td>
<td>Unlisted laparoscopy procedure, hernioplasty, herniorrhaphy,</td>
</tr>
</tbody>
</table>
herniotomy

49999 Unlisted procedure, abdomen, peritoneum and omentum

**ICD-10 Codes**

S39011A- S39011S Strain of muscle, fascia and tendon of abdomen code range
S39013A- S39013S Strain of muscle, fascia and tendon of pelvis code range
S39.81XA- S39.81XS Other specified injuries of abdomen code range
S39.83XA- S39.83XS Other specified injuries of pelvis code range

**Additional Policy Key Words**

Sports Hernia

**Policy Implementation/Update Information**

9/1/14 New policy; considered investigational.
9/1/15 No policy statement changes.
9/1/16 No policy statement changes.

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