



BlueCross BlueShield
of Alabama

Name of Blue Advantage Policy:

Surgery for ~~Athletic Pubalgia~~ Groin Pain in Athletes

Policy #: 560
Category: Surgery

Latest Review Date: March 2017
Policy Grade: A

Background:

Blue Advantage medical policy does not conflict with Local Coverage Determinations (LCDs), Local Medical Review Policies (LMRPs) or National Coverage Determinations (NCDs) or with coverage provisions in Medicare manuals, instructions or operational policy letters. In order to be covered by Blue Advantage the service shall be reasonable and necessary under Title XVIII of the Social Security Act, Section 1862(a)(1)(A). The service is considered reasonable and necessary if it is determined that the service is:

1. *Safe and effective;*
2. *Not experimental or investigational*;*
3. *Appropriate, including duration and frequency that is considered appropriate for the service, in terms of whether it is:*
 - *Furnished in accordance with accepted standards of medical practice for the diagnosis or treatment of the patient's condition or to improve the function of a malformed body member;*
 - *Furnished in a setting appropriate to the patient's medical needs and condition;*
 - *Ordered and furnished by qualified personnel;*
 - *One that meets, but does not exceed, the patient's medical need; and*
 - *At least as beneficial as an existing and available medically appropriate alternative.*

Routine costs of qualifying clinical trial services with dates of service on or after September 19, 2000 which meet the requirements of the Clinical Trials NCD are considered reasonable and necessary by Medicare. Providers should bill **Original Medicare for covered services that are related to **clinical trials** that meet Medicare requirements (Refer to Medicare National Coverage Determinations Manual, Chapter 1, Section 310 and Medicare Claims Processing Manual Chapter 32, Sections 69.0-69.11).*

Description of Procedure or Service:

Sports-related groin pain, commonly known as athletic pubalgia or 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.

Some believe athletic pubalgia to be an occult hernia process, a pre-hernia 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. 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. A 2015 consensus agreement has recommended the more general term groin pain in athletes, with specific diagnoses of adductor-related, iliopsoas-related, inguinal-related, and pubic-related 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 femoro-acetabular impingement (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. Surgery for athletic pubalgia has been performed concurrently with treatment of FAI, or following FAI surgery if symptoms did not resolve.

Diagnosis

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 (e.g. stress fractures, femoroacetabular impingement, labral tears), imaging may identify injury to the soft tissues of the groin and abdominal wall.

Conservative Treatment

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-). 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. 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 three 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. 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.

Policy:

Blue Advantage will treat ~~athletic pubalgia~~ **athletic groin pain in athletes** (also known as athletic pubalgia, 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) as a **non-covered benefit** and as **investigational in all situations**.

Blue Advantage does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Advantage administers benefits based on the members' contract and medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

Key Points:

The most recent literature review was updated through December 21, 2016.

Sports-related groin pain 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 policy focuses on RCTs and other controlled trials.

In 2015, a consensus report call the Doha agreement recommended use of specific diagnoses of adductor-related, iliopsoas-related, inguinal-related, or pubic-related groin pain in place of athletic pubalgia or sportsman’s hernia. However, these terms have yet to be routinely used in the published literature. Because it is not possible to determine which patient subgroups were studied, the terminology from the published reports will be used. The only validated patient-reported outcome measure for pain and dysfunction in the groin area in young and middle-aged patients that was identified in the Doha report is the Copenhagen Hip and Groin Outcome Score.

Mesh Reinforcement

Randomized Control Trials

In 2011, Paajanen et al reported on a multicenter RCT comparing surgical treatment and 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 trial, 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 tendonitis 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 to surgical or to conservative treatment groups. Conservative treatment included at least 2 months of active physical therapy (PT) 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 ($p < 0.001$). At 12 months, mean VAS scores for pain were less than 2 in both groups. However, among the 30 patients assigned to the conservative treatment group, 7 (23%) crossed over to surgery after 6 months with successful return to sport,

4(13%) discontinued their sport of choice, and 16 (53%) were left with disabling symptoms after 12 months but chose not to undergo surgery.

A 2001 RCT by Ekstrand and Ringborg randomized 66 male soccer players to hernioplasty plus neurotomy (n=17), PT (n=14), strength training of abdominal muscles (n=18), or to a no treatment control (n=17). All patients had an incipient hernia determined by herniography and/or positive nerve block test of the ilioinguinal or iliohypogastric nerves. VAS scores for pain were assessed at 3 and 6 months during coughing, sit-ups, jogging, kicking, and sprinting. VAS scores for pain in the control, physical therapy, and training groups were generally unchanged at 3 and 6 months, although results were analyzed using nonparametric tests instead of the more appropriate repeated-measures or mixed-effects analysis. VAS scores improved significantly more for the surgery group than for the 3 other groups (p<0.01). Strengths of this study included the active comparison groups and careful selection of patients. However, results are difficult to interpret due to the combined surgical procedure of hernioplasty plus neurotomy.

Observational Studies

Nonrandomized comparative and uncontrolled studies can sometimes provide useful information on health outcomes, but are prone to biases such as noncomparability of treatment groups, the placebo effect, and variable natural history of the condition. A number of observational series have reported on surgical outcomes. 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.

In 2016, Kopelman et al reported on a prospective series of 246 male patients with chronic groin pain. All patients underwent ultrasound, and 98 also underwent MRI. Of the 246 patients, 209 underwent conservative treatment with rest and non-steroidal anti-inflammatory drugs (NSAIDs), after which 51 (21%) of 246 underwent inguinal surgery. Another 37 (15%) patients were diagnosed by imaging with non-inguinal pathology such as inflammation of the pubic bone and symphysis pubis, rectus abdominis muscles, and hip joint pathologies. Of the 51 who underwent surgery (mesh repair, oblique aponeurosis release, neurolysis), a direct or indirect hernia was observed in 18 (35%) patients. In the remainder (65%), no abnormalities were found. There were 2 surgical failures, and all other patients returned to full sports activity within 4.3 weeks. In this series, most patients did not require surgery, and the authors commented that pubic and suprapubic symptomatology should be differentiated from inguinal and adductor complaints.

Section Summary: Mesh Reinforcement

The evidence on mesh reinforcement for inguinal-related groin pain includes 2 RCTs and a large prospective series. Results of the RCTs have suggested that, in carefully selected patients, mesh reinforcement results in an earlier return to play. However, a 2016 large prospective series indicated that only about 20% of patients with chronic groin pain benefit from inguinal surgery. Selection of patients in this series excluded patients with noninguinal pathology and failure of a conservative treatment trial of complete rest and NSAIDs. Further study is needed to corroborate these results and to define the patient population that would benefit from this treatment approach.

Surgical Repair of Release of Soft Tissue

Observational Studies

There is more limited literature on the repair or release of soft tissue. An example of a large case series is a retrospective review by Meyers et al (2008) that reported on the surgical treatment of 5218 patients diagnosed with athletic pubalgia over the prior 2 decades. Initially, diagnoses were made by history and physical examination, with MRI used in the more recent years. Referrals increased from 3 per week in 1987 to 25 per week in 2008. Patients treated with surgery ranged from 11 to 71 years of age; women comprised about 8% of the group. The surgeries involved 26 different procedures of reattachments and/or releases of soft tissues that normally attach or cross the pubic symphysis. 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.

Section Summary: Surgical Repair or Release of Soft Tissue

An alternative approach to the treatment of groin pain in athletes has been reported in a large series. This retrospective study included a review of medical records spanning 2 decades and over 5000 cases. There was no information on prior conservative treatments. More recent reports on these procedures from other institutions are lacking.

Summary of Evidence

For individuals who have sports-related groin pain who receive mesh reinforcement or who have surgical repair and release of soft tissue, the evidence includes 2 randomized controlled trials (RCT), and a number of case series. Relevant outcomes are symptoms, functional outcomes, and treatment-related morbidity. The evidence on mesh reinforcement for inguinal-related groin pain includes 2 RCTs and a large prospective series. Results of the RCTs have suggested that, in carefully selected patients, mesh reinforcement results in an earlier return to play. However, a large prospective series from 2016 has indicated that only about 20% of patients with chronic groin pain benefit from inguinal surgery. Further study is needed to define the patient population that would benefit from this treatment approach. An alternative approach to treatment of groin pain in athletes involves repair or release of soft tissue. This approach has been reported in a large series. It included a 2008 review of medical records spanning 2 decades and over 5000 cases. More recent reports on these procedures from other institutions are needed. The evidence is insufficient to determine the effects of the technology on health outcomes.

Practice Guidelines and Position Statements

American Academy of Orthopaedic Surgeons

The American Academy of Orthopaedic Surgeons posted an online educational document in 2010 on sports hernia (athletic pubalgia). AAOS indicated that a sports hernia is a painful soft tissue injury that occurs in the groin area. 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. Based on a consensus conference, the term "inguinal disruption" was agreed as the preferred nomenclature as 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 symphysisitis. A multidisciplinary approach with tailored physiotherapy 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. Preventative Services Task Force Recommendations

Not applicable.

Key Words:

Sports Hernia, Gilmore's groin, osteitis pubis, pubic inguinal pain syndrome, inguinal disruption, slap shot gut, sportsmen's groin, footballers groin injury complex, hockey groin syndrome, athletic hernia, sports hernia, core muscle injury, athletic pubalgia

Approved by Governing Bodies:

Surgical procedures do not require U.S. Food and Drug Administration (FDA) approval.

Benefit Application:

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

Current Coding:

CPT Codes:

27299	Unlisted procedure, pelvis or hip joint
49659	Unlisted laparoscopy procedure, hernioplasty, herniorrhaphy, herniotomy
49999	Unlisted procedure, abdomen, peritoneum and omentum

References:

1. Ahumada LA, Ashruf S, Espinosa-de-los-Monteros A et al. Athletic pubalgia: definition and surgical treatment. *Ann Plast Surg* 2005; 55(4):393-396.
2. American Academy of Orthopaedic Surgeons. OrthoInfo: Sportman's Hernia/Athletic Pubalgia. 2010. Available online at: orthoinfo.aaos.org/topic.cfm?topic=A00573.
3. Ekstrand J, Ringborg S. Surgery versus conservative treatment in soccer players with chronic groin pain: A prospective randomised study in soccer players. *Eur J Sports Traumatol Rel Res.* 2001; 23:141-145.

4. Holmich P, Nyvold P, Larsen K. Continued significant effect of physical training as treatment for overuse injury: 8- to 12-year outcome of a randomized clinical trial. *Am J Sports Med* 2011; 39(11):2447-2451.
5. Holmich P, Uhrskou P, Ulnits L et al. Effectiveness of active physical training as treatment for long-standing adductor-related groin pain in athletes: randomised trial. *Lancet* 1999; 353(9151):439-443.
6. Irshad K, Feldman LS, Lavoie C et al. Operative management of "hockey groin syndrome": 12 years of experience in National Hockey League players. *Surgery* 2001; 130(4):759-764; discussion 764-766.
7. Khan W, Zoga AC, Meyers WC. Magnetic resonance imaging of athletic pubalgia and the sports hernia: current understanding and practice. *Magn Reson Imaging Clin N Am* 2013; 21(1):97-110.
8. Kopelman D, Kaplan U, Hatoum OA, et al. The management of sportsman's groin hernia in professional and amateur soccer players: a revised concept. *Hernia*. Feb 2016; 20(1):69-75.
9. Kumar A, Doran J, Batt ME et al. Results of inguinal canal repair in athletes with sports hernia. *J R Coll Surg Edinb* 2002; 47(3):561-565.
10. Litwin DE, Sneider EB, McEnaney PM et al. Athletic pubalgia (sports hernia). *Clin Sports Med* 2011; 30(2):417-434.
11. Meyers WC, McKechnie A, Philippon MJ et al. Experience with "sports hernia" spanning two decades. *Ann Surg* 2008; 248(4):656-665.
12. Munegato D, Bigoni M, Gridavilla G, et al. Sports hernia and femoroacetabular impingement in athletes: A systematic review. *World J Clin Cases*. Sep 16 2015; 3(9):823-830.
13. Paajanen H, Brinck T, Hermunen H et al. Laparoscopic surgery for chronic groin pain in athletes is more effective than nonoperative treatment: a randomized clinical trial with magnetic resonance imaging of 60 patients with sportsman's hernia (athletic pubalgia). *Surgery* 2011; 150(1):99-107.
14. Paajanen H, Syvahuoko I, Airo I. Totally extraperitoneal endoscopic (TEP) treatment of sportsman's hernia. *Surg Laparosc Endosc Percutan Tech* 2004; 14(4):215-218.
15. 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*. Jul 2014; 48(14):1079-1087.
16. Steele P, Annear P, Grove JR. Surgery for posterior inguinal wall deficiency in athletes. *J Sci Med Sport* 2004; 7(4):415-421; discussion 422-423.
17. Thorborg K, Holmich P, Christensen R, et al. The Copenhagen Hip and Groin Outcome Score (HAGOS): development and validation according to the COSMIN checklist. *Br J Sports Med*. May 2011; 45(6):478-491.
18. Weir A, Brukner P, Delahunt E, et al. Doha agreement meeting on terminology and definitions in groin pain in athletes. *Br J Sports Med*. Jun 2015; 49(12):768-774.

Policy History:

Adopted for Blue Advantage, July 2014

Available for comment August 6 through September 19, 2014

Medical Policy Group, July 2015

Medical Policy Group, February 2016

This medical policy is not an authorization, certification, explanation of benefits, or a contract. Eligibility and benefits are determined on a case-by-case basis according to the terms of the member's plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date hereof. Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.

This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield's administration of plan contracts.