

Clinical Practice Guideline: Ostectomy for Tarsal Coalition

Date of Implementation: September 17, 2015

Product: Specialty

GUIDELINES

American Specialty Health – Specialty (ASH) considers services consisting of CPT Code 28116 to be medically necessary for the excision of tarsal coalition **upon meeting ALL of the following criteria:**

1. When supported by a diagnosis of other specified congenital deformities of feet (tarsal coalition), diagnosis code Q66.89
2. Confirmation of coalition by radiographs, CT, or MRI
3. The symptoms of the coalition must include **2 or more of the following:**
 - Severe pain when walking or standing
 - Muscle spasms in the leg, causing the foot to turn outward when walking
 - Flatfoot (in one or both feet)
 - Walking with a limp
 - Stiffness of the foot and ankle
4. Failure of **at least 2 of the following** non-operative treatments
 - Physical therapy
 - Orthotics/bracing
 - Shoe modification
 - Activity modification
 - Medications
 - Injections

CPT CODES AND DESCRIPTIONS

CPT® Code	CPT® Code Description
28116	Ostectomy, excision of tarsal coalition

BACKGROUND

CPT code 28116 describes an ostectomy procedure for the excision of tarsal coalition. A tarsal coalition is an abnormal connection that develops between the tarsal bones of the foot. This may lead to limited motion and pain in the feet. The tarsal bones include the calcaneus (heel bone), talus, navicular, cuboid, and cuneiform bones. These bones work together to provide the motion necessary for normal foot function.

1 Tarsal coalition is a congenital bony, cartilaginous, or fibrous connection between the tarsal
2 bones, which may result from a congenital failure of differentiation in the developing fetal
3 foot. Coalitions which are fibrous or cartilaginous during the first years of life can later
4 start to ossify leading to the development of pain and deformity. Tarsal coalitions
5 commonly involve the talocalcaneal and calcaneonavicular bone. Additionally, patients
6 frequently have more than one coalition in the same foot and 50% of patients have bilateral
7 coalition.
8

9 The radiographic evaluation of a suspected tarsal coalition should begin with plain
10 anteroposterior (AP), lateral, and oblique radiographs of the foot. The diagnosis of
11 calcaneonavicular, talonavicular, and calcaneocuboid coalitions can usually be made using
12 plain radiographs, while the talocalcaneal variety is difficult to view. Both CT scans and
13 MRI are helpful for complete evaluation (McCarthy et al., 2010).
14

15 Pain is the principal symptom associated with tarsal coalition. Other symptoms may
16 include restricted subtalar motion, rigid flatfoot deformity, a limp with higher levels of
17 activity, and peroneal spasms. Nonsurgical treatments have the potential to achieve pain
18 relief and prevent or delay surgery for symptomatic tarsal coalitions. Nonsurgical treatment
19 of tarsal coalitions may include activity modification, nonsteroidal anti-inflammatory
20 medications, over-the-counter longitudinal arch supports, and orthotics and immobilization
21 in a temporary boot or short leg cast. Should nonsurgical treatment fail to ease pain or
22 improve function, then surgical methods including resection (ostectomy) or arthrodesis are
23 recommended (Shirley et al., 2018).
24

25 Talocalcaneal coalition often leads to a flatfoot deformity in children. However, the
26 optimum surgical procedure for talocalcaneal coalition combined with flatfoot has not been
27 definitively determined. Zhou et al. (2014) conducted a review of current literature to
28 provide an overview of the current knowledge about etiology, biomechanics, classification,
29 diagnosis, and treatment options for talocalcaneal coalitions with flatfoot in children. The
30 goal of conservative treatment for patients with talocalcaneal coalition and flatfoot is to
31 limit subtalar and midtarsal joint range of motion in an effort to reduce pain and muscle
32 spasms. Conservative treatments include arch supports, a short leg walking cast,
33 immobilization in neutral or a slight varus position, and anti-inflammatory medications.
34 Current surgical techniques include bar resection with or without interposition in the
35 resection gap, subtalar joint arthrodesis, and also extra-articular arthrodesis in the sinus
36 tarsi. It is generally accepted to perform a single resection of coalition for a painful small
37 talocalcaneal coalition that is associated with a wide, healthy posterior facet and minimal
38 valgus deformity of the hindfoot. However, most of coalitions in talocalcaneal middle facet
39 are associated with rigid pes planovalgus, therefore, simple resection is not suitable for all
40 talocalcaneal coalition cases due to the variation in anatomy and deformity (Zhou et al.,
41 2014).

1 There are little patient-reported data on functional outcomes of tarsal coalition resection in
 2 children and adolescents. Mahan et al. (2015) carried out a study to evaluate the medium-
 3 term (>2 year) outcomes in patients who have had surgical excision of their symptomatic
 4 tarsal coalition and to compare patient-based outcomes in patients who have
 5 calcaneonavicular (CN) coalitions to those with talocalcaneal (TC) coalitions ($N=63$).
 6 Twenty-four patients had bilateral surgery. TC coalitions were present in 20 patients
 7 (32%); CN coalitions were present in 43 patients (68%). Overall, mean modified AOFAS
 8 score was 88.3 and mean UCLA activity score was 8.33 at an average of 4.62 years after
 9 surgery. Patients who had TC coalitions had similar modified AOFAS scores (88.4) and
 10 UCLA activity scores (8.4) when compared with those with CN coalitions (88.0 and 8.3,
 11 both not significant). Of the 73% patients who reported that their activity levels were not
 12 limited by their foot pain, the mean AOFAS score was 93.9 and the mean UCLA activity
 13 score was 8.9; 32 of these were CN and 14 were TC coalitions. Of the 27% patients who
 14 reported that their activity levels were limited by their foot pain, the mean AOFAS score
 15 was 72.9 and the mean UCLA activity score was 6.9; 11 of these were CN and 6 were TC
 16 coalitions. There was a statistically significant difference in these groups both in modified
 17 AOFAS score ($P<0.0001$) and UCLA activity score ($P=0.006$). There was no difference in
 18 outcomes between those who were treated for a TC and CN coalition. The patient-reported
 19 outcomes after surgical excision of tarsal coalition indicated that >70% of patients'
 20 activities were not limited by pain and their functional outcome was very good. A few
 21 patients continued to have problems with ongoing foot pain and activity limitations.
 22 Additionally, the type of coalition did not seem to be an indicative factor in determining
 23 outcome.

24
 25 Patients with a preexisting hindfoot deformity, who undergo resection (with or without soft
 26 tissue interposition) of a tarsal coalition, may present with recurrent pain and worsening
 27 planovalgus deformity due to the secondary effect of soft tissue contractures (lateral
 28 ligaments, peroneal tendons, calf muscles). Physiotherapy and insoles may help some
 29 patients. Depending on the flexibility of the hindfoot and the presence or otherwise of joint
 30 degeneration, joint-preserving corrective procedures or corrective arthrodesis may be
 31 needed (Gougoulias et al., 2014).

32 33 **PRACTITIONER SCOPE AND TRAINING**

34 Practitioners should practice only in the areas in which they are competent based on their
 35 education, training and experience. Levels of education, experience, and proficiency may
 36 vary among individual practitioners. It is ethically and legally incumbent on a practitioner
 37 to determine where they have the knowledge and skills necessary to perform such services
 38 and whether the services are within their scope of practice.

39
 40 It is best practice for the practitioner to appropriately render services to a member only if
 41 they are trained, equally skilled, and adequately competent to deliver a service compared
 42 to others trained to perform the same procedure. If the service would be most competently

1 delivered by another health care practitioner who has more skill and training, it would be
2 best practice to refer the member to the more expert practitioner.

3
4 Best practice can be defined as a clinical, scientific, or professional technique, method, or
5 process that is typically evidence-based and consensus driven and is recognized by a
6 majority of professionals in a particular field as more effective at delivering a particular
7 outcome than any other practice (Joint Commission International Accreditation Standards
8 for Hospitals, 2020).

9
10 Depending on the practitioner’s scope of practice, training, and experience, a member’s
11 condition and/or symptoms during examination or the course of treatment may indicate the
12 need for referral to another practitioner or even emergency care. In such cases it is prudent
13 for the practitioner to refer the member for appropriate co-management (e.g., to their
14 primary care physician) or if immediate emergency care is warranted, to contact 911 as
15 appropriate. See the *Managing Medical Emergencies (CPG 159 – S)* clinical practice
16 guideline for information.

17 **References**

18 American College of Foot and Ankle Surgeons (ACFAS) Position statement on cosmetic
19 surgery (2020). Retrieved on May 11, 2023 from: <https://www.acfas.org/policy-advocacy/policy-position-statements/acfas-position-statement-on-cosmetic-surgery>

20
21
22
23 American Medical Association. (current year). *Current Procedural Terminology (CPT)*
24 *Current year (rev. ed.)*. Chicago: AMA

25
26 Carli, A., Leblanc, E., Amitai, A., & Hamdy, R. C. (2014). The Evaluation and Treatment
27 of Pediatric Tarsal Coalitions: A Critical Analysis Review. *JBJS Reviews*, 2(8), e2.

28
29 Gougoulas, N., O’Flaherty, M., & Sakellariou, A. (2014). Taking out the tarsal coalition
30 was easy: but now the foot is even flatter. What now?. *Foot and Ankle Clinics*, 19(3),
31 555-568. doi: 10.1016/j.fcl.2014.06.011

32
33 Joint Commission International. (2020). *Joint Commission International Accreditation*
34 *Standards for Hospitals (7th ed.)*: Joint Commission Resources

35
36 Mahan, S. T., Spencer, S. A., Vezeridis, P. S., & Kasser, J. R. (2015). Patient-reported
37 Outcomes of Tarsal Coalitions Treated With Surgical Excision. *Journal of Pediatric*
38 *Orthopedics*. doi: 10.1097/bpo.0000000000000334

39
40 McCarthy, J. J., & Drennan, J. C. (2010). *Drennan's the Child's Foot and Ankle*: Lippincott
41 Williams & Wilkins

- 1 Radl, R., Fuhrmann, G., Maafe, M., & Kriffter, R. M. (2012). [Hindfoot valgus. Diagnosis
2 and therapy of flatfoot]. *Orthopade*, *41*(4), 313-324; quiz 325-316. doi:
3 10.1007/s00132-012-1903-1
4
- 5 Shirley, E., Gheorghe, R., & Neal, K. M. (2018). Results of nonoperative treatment for
6 symptomatic tarsal coalitions. *Cureus*, *10*(7), e2944.
7 <https://doi.org/10.7759/cureus.2944>
8
- 9 Thorpe, S. W., & Wukich, D. K. (2012). Tarsal coalitions in the adult population: does
10 treatment differ from the adolescent? *Foot and Ankle Clinics*, *17*(2), 195-204. doi:
11 10.1016/j.fcl.2012.03.004
12
- 13 Waschak, K., Suda, R., Handlbauer, A., Kranzl, A., & Grill, F. (2010). Results after
14 surgical treatment of congenital tarsal coalition. *Journal of Bone & Joint Surgery,*
15 *British Volume*, *92-B*(SUPP II), 337
16
- 17 Zhou, B., Tang, K., & Hardy, M. (2014). Talocalcaneal coalition combined with flatfoot
18 in children: diagnosis and treatment: a review. *Journal of Orthopaedic Surgery and*
19 *Research*, *9*, 129