Chronic Rupture of the Peroneal Tendons

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KEYWORDS

• Chronic rupture • Peroneal tendons • Surgical solutions

KEY POINTS

- Chronic rupture of the peroneal tendons can be a functionally limiting condition with a multitude of causes.
- Conservative and operative interventions are heterogenous and tailored to the functional demands of the patient.
- Surgical plans are based on muscle viability, patient preference, and surgeon expertise.
- Clinical outcomes evidence remains limited in this domain, and further well-designed studies are warranted to guide treatment.

INTRODUCTION

Chronic rupture of the peroneal tendons may be the result of a neglected injury, chronic inflammatory changes, or the sequela of longstanding tension or friction that subjects the peroneal tendons to excessive stress leading to tendinopathy and subsequent discontinuity.[1–3] Abnormality can occur at the peroneus longus, peroneus brevis, or both tendons. A meticulous history, thorough physical examination, and appropriate diagnostic testing are imperative to identify the cause of this condition. Conservative and operative interventions are heterogenous and tailored to the functional demands of the patient.

Clinical Presentation

Patients with chronic ruptures of the peroneal tendons present with difficulty in hindfoot eversion, pain, swelling, and functional instability. Plantarflexion of the first ray or pivoting or ankle and dorsiflexion at the ankle may prove difficult as well. Pain along the plantar aspect of the foot may indicate peroneus longus rupture or tendinopathy. History taking should attempt to elicit possible pathologic causes, including history of fluoroquinolone usage, steroid injection, prior trauma, infection, antecedent pain and swelling, chronic dislocating tendons, wearing out of lateral border of shoes due to

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foot position, and previous surgery.[2] Chronicity of symptoms is important to ascertain as prolonged disuse of lateral compartment musculature may lead to fatty atrophy and less utility of operative tendon salvage. History taking may have sensitivity but lacks specificity because there is a great amount of overlap with chronic peroneal tendinopathy without rupture. Severity of weakness is the most notable distinguishing factor, although this may be confounded by pain.

Physical examination should begin with visual assessment of lower extremity alignment. Visual assessment requires observing the patient preferably in shorts with knees visible. Varus tensioning is commonly the underlying factor and may be secondary to ankle or subtalar malalignment, supramalleolar deformity, or varus angulation at the level of the knee. Tenderness and edema may be noted over the trajectory of the peroneals. In addition to standard strength testing, special attention should be paid to discern weakness in resisted ankle eversion and resisted first ray plantarflexion as compared with the contralateral limb. During resisted strength testing, the peroneals should be palpated for continuity. Single-leg balance and heel raise often prove painful and challenging. The patient may concomitantly have abnormality of the lateral ankle ligamentous complex with generalized instability in this region.

Diagnostic Imaging

Plain film assessment should be undertaken to identify any confounding abnormalities, such as arthritic disease, fracture, or nonunion. A lateral radiograph can prove valuable for identifying a proximally migrated os peroneum in the case of peroneus longus rupture or os peroneum fracture.[4] In addition to foot films, ankle radiographs and hindfoot alignment films are necessary to identify malalignment in the supramalleolar, ankle, or subtalar locations. Similarly, knee radiographs may be indicated when knee malalignment is suspected. MRI has limitations in peroneal tendon assessment because the tendons have a curvilinear course at the level of the distal fibula, subjecting them to magic angle phenomenon, which can belie the true integrity of these tendons.[5] With advanced disease, MRI will be useful to demonstrate the extent of abnormality. There may be a role for MRI in plantarflexion to mitigate the effect of this phenomenon and lessen artifact. The authors advocate for proximal extension of the MRI beyond the ankle so as to identify any fatty infiltration of the peroneal muscle belies in cases of suspected chronic rupture. Ultrasound is a powerful tool for assessment of the peroneal tendons, although its utility is correlated with operator skill and familiarity.[6]

TREATMENT OPTIONS

Conservative Management

Treatment plans should be decided upon after engaging in the shared decision-making process with the patient and germane family members. Functional demands, pain level, and the patient's risks of surgery should all be considered. Nonoperative management may have a limited role in true chronic peroneal rupture but can be indicated in the appropriate patient. Patients with lower functional demands and higher relative risk of surgical complications may be candidates for a period of immobilization followed by physical therapy and bracing.[1] If flexible heel varus exists secondary to a dropped first ray, then custom orthoses with lateral forefoot posting to maintain the heel in neutral may prove helpful.

Two-Cable Surgical Solutions

In cases with limited muscular fatty infiltration and preserved motor function, the impetus to proceed with surgery is heightened in order to optimize outcomes.