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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
1. Lateur LM, Van Hoe LR, Van Ghillewe KV, Gryspeerdt SS, Baert AL, Dereymaeker GE. Subtalar coalition: diagnosis with the C sign on lateral radiographs of the ankle. *Radiology* 1994; 193(3):847-851.	Observational-Dx	18 patients in retrospective study and 325 CT scans and 148 MRIs in prospective study	To evaluate the usefulness of the C sign, a C-shaped line formed by the medial outline of the talar dome and the inferior outline of the sustentaculum tali, in the diagnosis of subtalar coalition on lateral radiographs of the ankle.	The C sign was seen on lateral radiographs in all 18 cases of subtalar coalition in the retrospective study. 15 cases of subtalar coalition were found in the prospective study, 13 of which had a C sign on lateral radiographs. Two additional findings on the CT or MRIs were consistently associated with subtalar coalition and caused the C sign on the lateral radiographs: a horizontal inferior surface of the sustentaculum tali and pathologic calcaneal valgus in the coronal plane.	3
2. Harris RI, Beath T. Etiology of peroneal spastic flat foot. 1948; 30B(4):624-634.	Review/Other-Dx	N/A	To demonstrate that most cases of peroneal spastic flat foot are due to tarsal anomalies.	Lipping of the upper margin of the talonavicular joint strongly suggests the existence of one or other of the congenital anomalies. Both anomalies are visualized only by special radiological projections.	4
3. Wechsler RJ, Karasick D, Schweitzer ME. Computed tomography of talocalcaneal coalition: imaging techniques. *Skeletal Radiol* 1992; 21(6):353-358.	Review/Other-Dx	18 patients	Study reviews the CT anatomy of talocalcaneal coalitions in several projections and stresses the routine use of the angled coronal and direct sagittal projections.	6 feet were found to have osseous coalition and 5, nonosseous coalition. The ability of CT to display the complex anatomy of the talocalcaneal joint has improved the diagnostic evaluation of patients with talocalcaneal coalitions.	4
4. Wechsler RJ, Schweitzer ME, Deely DM, Horn BD, Pizzutillo PD. Tarsal coalition: depiction and characterization with CT and MR imaging. *Radiology* 1994; 193(2):447-452.	Review/Other-Dx	10 feet in 9 patients	To compare CT and MRI in the detection, localization, and characterization of tarsal coalitions.	5 calcaneonavicular and 4 medial subtalar coalitions were found at surgery. One patient had synovitis. CT depicted 6 coalitions and 4 were characterized correctly, but the fibrous coalitions were not characterized correctly. MR depicted all coalitions and 7 were characterized correctly, including the fibrous coalitions. At MRI, proliferative synovitis was incorrectly characterized as a fibrous coalition.	4
5. Newman JS, Newberg AH. Congenital tarsal coalition: multimodality evaluation with emphasis on CT and MR imaging. *Radiographics* 2000; 20(2):321-332; quiz 526-327, 532.	Review/Other-Dx	N/A	To review the clinical characteristics of congenital tarsal coalition; describe the evaluation of the foot and ankle with conventional radiography, CT, and MRI; and discuss treatment of tarsal coalition.	The diagnosis of talocalcaneal coalition may be more difficult with radiography given the anatomy of the subtalar joint, and CT or MRI is generally indicated for further evaluation.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
6. Poplawski ZJ, Wiley AM, Murray JF. Post-traumatic dystrophy of the extremities. *J Bone Joint Surg Am* 1983; 65(5):642-655.	Review/Other-Dx	126 patients reviewed; 27 patients treated	To review a large number of patients with established post-traumatic dystrophy and describe a new method of treatment for the condition.	Patients were treated with one or more intravenous injections of a solution of lidocaine and corticosteroid followed by standard physical therapy. Of 27 patients treated, the results were satisfactory or better in 21 extremities and poor in 7. Of the 21with a satisfactory result, 11 (6 patients with involvement of the hand, bilateral in one, and 4 patients with involvement of the foot) had an excellent result while the other 10 showed substantial improvement. The most important factor in predicting improvement with treatment was a short interval (>6 months) between the onset of dystrophy and the administration of therapy.	4
7. Wilder RT, Berde CB, Wolohan M, Vieyra MA, Masek BJ, Micheli LJ. Reflex sympathetic dystrophy in children. Clinical characteristics and follow-up of seventy patients. *J Bone Joint Surg Am* 1992; 74(6):910-919.	Observational-Tx	70 patients	To determine the characteristics of the patients and the course of RSD in a group of younger patients who were evaluated and treated by a consistent algorithm.	Conservative treatment with physical therapy, transcutaneous electrical nerve stimulation, and psychological therapies including cognitive-behavioral management and relaxation training, and tricyclic antidepressants was effective in improving the average scores for pain and function for 40 patients. Sympathetic blocks were helpful for 28/37 patients. 38/70 patients in the series continued to have some degree of residual pain and dysfunction.	2
8. Kozin F, Soin JS, Ryan LM, Carrera GF, Wortmann RL. Bone scintigraphy in the reflex sympathetic dystrophy syndrome. *Radiology* 1981; 138(2):437-443.	Observational-Dx	64 patients	To examine the relative value of scintigraphy and radiography in the assessment and therapy of RSD in patients suspected of having the syndrome.	Osteoporosis was the most common radiographic abnormality, present in 69% of subjects with definite, probable, or possible RSD, as compared with 21% of those without RSD. Scintigraphic abnormalities were noted in 60% of RSD patients but in only 7% of the others. These findings included increased blood flow and enhanced periarticular radionuclide activity in the affected extremity. Of 11 patients with serial scintigraphy, 6 (55%) demonstrated a return to normal, symmetrical patterns following successful therapy.	3

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
9. Genant HK, Kozin F, Bekerman C, McCarty DJ, Sims J. The reflex sympathetic dystrophy syndrome. A comprehensive analysis using fine-detail radiography, photon absorptiometry, and bone and joint scintigraphy. *Radiology* 1975; 117(1):21-32.	Review/Other-Dx	9 patients	A small group of patients with RSD was examined, using new radiological and radionuclide techniques, to define the pattern and degree of aggressive bone loss and to document the component of arthropathy.	Clinical manifestations suggesting arthropathy were supported by radiographic demonstration of juxta-articular and subchondral bone erosions and by radionuclide demonstration of increased activity localized in the joint regions. Aggressive demineralization was demonstrated by fine-detail radiography and consisted of endosteal and intracortical excavation and subperiosteal and trabecular bone resorption.	4
10. Simon H, Carlson DH. The use of bone scanning in the diagnosis of reflex sympathetic dystrophy. *Clin Nucl Med* 1980; 5(3):116-121.	Review/Other-Dx	18 patients	To evaluate the value of bone scanning in the diagnosis of RSD.	Bone scanning was helpful in evaluating 18 patients, making the diagnosis in 13 and excluding it in 5.	4
11. Intenzo C, Kim S, Millin J, Park C. Scintigraphic patterns of the reflex sympathetic dystrophy syndrome of the lower extremities. *Clin Nucl Med* 1989; 14(9):657-661.	Review/Other-Dx	32 patients	To retrospectively analyze patients suspected of having lower extremity RSD and evaluated by bone scintigraphy.	23 patients had abnormal scan findings consistent with RSD, while the scans of the remaining 9 patients were normal. Of the 23 patients with abnormal scans, 19 demonstrated increased periarticular activity on early and delayed images, while 4 patients demonstrated decreased activity in the affected limb.	4
12. Holder LE, Cole LA, Myerson MS. Reflex sympathetic dystrophy in the foot: clinical and scintigraphic criteria. *Radiology* 1992; 184(2):531-535.	Observational-Dx	151 patients	To establish strict clinical criteria for RSD of the foot and to characterize any associated scintigraphic pattern, the authors performed three-phase radionuclide bone scanning in 51 patients prospectively referred because RSD was a diagnostic consideration. To establish sensitivity and specificity data, the cases of an additional 100 consecutive patients referred for a variety of foot problems were retrospectively reviewed.	Overall, sensitivity was 100%; specificity, 80%; PPV, 54%; and NPV, 100%. False-positive images were obtained in patients with infection, diabetes, and chronic pain. Specificity was 66% in the subgroup of patients who underwent sympathetic block, with a PPV of 88%. There were no differences in scan pattern related to duration of symptoms prior to imaging.	3

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
13. Schweitzer ME, Mandel S, Schwartzman RJ, Knobler RL, Tahmoush AJ. Reflex sympathetic dystrophy revisited: MR imaging findings before and after infusion of contrast material. *Radiology* 1995; 195(1):211-214.	Observational-Dx	51 patients	To determine the appearance of RSD at MRI.	RSD was confirmed in 45 patients. In 35 patients with stage 1 RSD, skin thickening (31 patients), tissue enhancement with contrast material (31 patients), and soft-tissue edema (6 patients) were demonstrated. In 5 patients with stage 2 RSD, skin thickening (2 patients), skin thinning (2 patients), and infrequent contrast material enhancement (1 patient) were demonstrated. There was no edema in this group of patients. In 5 patients with stage 3 RSD, inconsistent skin changes were also demonstrated; however, muscle atrophy (4 patients) was demonstrated in this stage only.	3
14. Nazarian LN, Schweitzer ME, Mandel S, et al. Increased soft-tissue blood flow in patients with reflex sympathetic dystrophy of the lower extremity revealed by power Doppler sonography. *AJR* 1998; 171(5):1245-1250.	Observational-Dx	30 patients and 26 controls	To evaluate the ability of power Doppler US to show increased soft-tissue blood flow in patients with RSD of the lower extremity.	More power Doppler flow was seen in the patients with RSD than in the control subjects ($P<.005$). In addition, side-to-side asymmetry of flow was seen in patients, but this trend was not statistically significant ($P<.20$). ROC analysis showed that combined flow and asymmetry were more related to RSD than either parameter alone (area under the ROC curve: for flow, 0.748; for asymmetry, 0.566; for both, 0.799). The authors found that when the sum of power Doppler flow in both feet was ≥5, and asymmetry of flow was ≥1, the sensitivity of power Doppler US for RSD was 73% and the specificity was 92%.	4
15. Gauthier G, Elbaz R. Freiberg's infraction: a subchondral bone fatigue fracture. A new surgical treatment. *Clin Orthop Relat Res* 1979; (142):93-95.	Review/Other-Dx	53 cases	To examine series of cases that was successfully treated by deflexion osteotomy of the involved metatarsal head.	No results stated in abstract.	4
16. Nguyen VD, Keh RA, Daehler RW. Freiberg's disease in diabetes mellitus. *Skeletal Radiol* 1991; 20(6):425-428.	Review/Other-Dx	13 cases	To evaluate cases of Freiberg's disease in patients aged 47-77 years collected over an 8-year period.	7 were associated with diabetes mellitus and one with chronic renal failure; the remainder had no underlying disease.	4
17. Karasick D, Schweitzer ME. The os trigonum syndrome: imaging features. *AJR* 1996; 166(1):125-129.	Review/Other-Dx	N/A	Pictorial essay is used to explore the role of imaging modalities in the diagnosis and treatment of the os trigonum syndrome, a symptom complex that may present difficult diagnostic problems.	The roles of different imaging modalities are presented in this essay.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
18. Miller TT, Staron RB, Feldman F, Parisien M, Glucksman WJ, Gandolfo LH. The symptomatic accessory tarsal navicular bone: assessment with MR imaging. *Radiology* 1995; 195(3):849-853.	Review/Other-Dx	14 feet of 7 patients	To determine if a symptomatic accessory navicular bone, a normal variant, displays a pattern of altered signal intensity on MRI indicative of an abnormality that could account for the patient's foot pain.	A bone marrow edema pattern was noted in the accessory navicular bones of the 5 patients with focal pain and in the adjacent navicular tuberosities of 3 of them. The 2 patients with vague pain showed no osseous or soft-tissue abnormalities. Two patients with positive MRIs underwent surgical excision of the accessory navicular bone, and histologic examination revealed osteonecrosis in one patient.	4
19. Romanowski CA, Barrington NA. The accessory navicular--an important cause of medial foot pain. *Clin Radiol* 1992; 46(4):261-264.	Review/Other-Dx	10 patients	To present a group of patients with a symptomatic accessory navicular in whom bone scans were performed.	Plain radiography reveals an accessory navicular united to the navicular by a synchondrosis (Type II). The diagnosis can be confirmed by showing increased localized uptake of isotope on a Tc-99m methylene diophosphate bone scan. In some cases, the accessory navicular is mistaken for a fracture. Awareness of this accessory ossicle causing such symptoms should lead to the correct diagnosis.	4
20. Sharp JT. Scoring radiographic abnormalities in rheumatoid arthritis. *Radiol Clin North Am* 1996; 34(2):233-241, x.	Review/Other-Dx	N/A	Review various methods for scoring radiographic abnormalities in RA.	No results stated in abstract.	4
21. Boutry N, Larde A, Lapegue F, Solau-Gervais E, Flipo RM, Cotten A. Magnetic resonance imaging appearance of the hands and feet in patients with early rheumatoid arthritis. *J Rheumatol* 2003; 30(4):671-679.	Observational-Dx	30 patients	To describe the MRI findings of the feet in patients with early RA, and to compare MRI appearance of the feet with that of the hands.	In the hands, MRI findings suggested active synovitis of the wrist and metacarpophalangeal joints in 28 (93%) and 27 (90%) patients, respectively. In the feet, active synovitis was observed in 29 (97%) patients. Bone erosions were seen in the wrist joints in 24 (80%) patients. Observers found as many bony changes in the metacarpophalangeal as in the metatarsophalangeal joints [23 (77%) patients]. MRI detected tenosynovitis in 16 (53%) patients in the hands, and in 18 (60%) patients in the feet. Bursitis located between or beneath the metatarsal heads was a common MRI finding [19 (63%) patients].	3

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
22. Ostendorf B, Scherer A, Modder U, Schneider M. Diagnostic value of magnetic resonance imaging of the forefeet in early rheumatoid arthritis when findings on imaging of the metacarpophalangeal joints of the hands remain normal. *Arthritis Rheum* 2004; 50(7):2094-2102.	Observational-Dx	25 patients	To investigate the diagnostic role of MRI of the forefeet in patients with early RA in whom findings on MRIs of the hands are normal and conventional radiographs of the hands and feet do not show erosions.	MRI revealed pathologic findings in the hands of 15/25 patients (edema in 9 patients, synovitis in 12, erosions in 6, defects in 3). In 10 patients with a mean disease duration of 9.4 weeks, hand MRI scans were normal according to RAMRIS. 4/10 patients had tenosynovitis of the finger flexor tendons (there was no OMERACT criterion for tenosynovitis). RAMRIS analysis of the corresponding MRI scans of the forefeet of these patients revealed signs of edema in 7 patients, synovitis in all 10 patients (at the third metatarsophalangeal joint in 7, at the fourth metatarsophalangeal joint in 6, at the first metatarsophalangeal joint in 4, and at the fifth metatarsophalangeal joint in 2 patients), tenosynovitis of the foot flexor tendons in 2 patients, erosions at the second and third metatarsophalangeal joints in 1 patient, and a single defect at the first metatarsophalangeal joint in 1 patient.	3
23. Erdem CZ, Sarikaya S, Erdem LO, Ozdolap S, Gundogdu S. MR imaging features of foot involvement in ankylosing spondylitis. *Eur J Radiol* 2005; 53(1):110-119.	Observational-Dx	23 patients (46 feet); 10 controls (20 feet)	To determine alterations of the soft tissue, tendon, cartilage, joint space, and bone of the foot using MRI in ankylosing spondylitis patients.	Clinical signs and symptoms (pain and swelling) due to foot involvement were present in 3 (13%) of the patients while frequency of involvement was 21 (91%) with MRI assessment. The MRI findings were bone erosions (65%), Achilles tendinitis (acute and chronic) (61%), para-articular enthesophyte (48%), joint effusion (43%), plantar fasciitis (40%), joint space narrowing (40%), subchondral sclerosis (35%), soft tissue edema (30%), bone marrow edema (30%), enthesopathy of the Achilles attachment (30%), subchondral edema (26%), enthesopathy in the plantar fascia attachment (22%), retrocalcaneal bursitis (22%), subchondral cysts (17%), subchondral fissures (17%), tendinitis and enthesopathy of the plantar ligament (13%), and bony ankylosis (9%). The most common involved anatomical region was the hindfoot (83%) following by midfoot (69%) and ankle (22%).	4

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24. Ghanem N, Uhl M, Pache G, Bley T, Walker UA, Langer M. MRI in psoriatic arthritis with hand and foot involvement. *Rheumatol Int* 2007; 27(4):387-393.	Review/Other-Dx	25 patients	To evaluate MRI-findings in patients with involvement of psoriatic arthritis in small joints in hands and feet.	All patients were found to be positive for one or more imaging criteria. Soft tissue oedema was identified in 22/25 (88%) patients. Joint effusion was observed in 23/25 (92%) patients, whereas bone erosion was seen in 20/25 (80%) patients. Bone marrow oedema was evident in 21/25 (84%) cases. In 12/25 (48%) cases, bone proliferation was noted. Tendon sheath effusion was present in 17/25 (68%) patients. Contrast enhancement of the synovia was detected in all patients (n = 25) (100%), whereas adjacent periost was enhanced in 22/25 (88%) and epiphysial bone marrow in 18/25 (72%) patients.	4
25. Ostergaard M, Emery P, Conaghan PG, et al. Significant improvement in synovitis, osteitis, and bone erosion following golimumab and methotrexate combination therapy as compared with methotrexate alone: a magnetic resonance imaging study of 318 methotrexate-naive rheumatoid arthritis patients. *Arthritis Rheum* 2011; 63(12):3712-3722.	Experimental-Dx	318 patients	To evaluate the effects of golimumab on inflammation/structural damage detected by MRI in patients with RA.	At weeks 12 and 24, combined therapy with golimumab plus methotrexate vs placebo plus methotrexate significantly improved RAMRIS scores for synovitis (mean -1.92 vs 0.14 [P<0.001] at week 12; -2.45 vs -1.04 [P<0.001] at week 24), osteitis (mean -1.82 vs 0.56 [P<0.001] at week 12; -2.27 vs -0.32 [P<0.001] at week 24), and bone erosion (mean -0.40 vs 0.24 [P=0.016] at week 12; -0.40 vs -0.24 [P=0.010] at week 24). Results of sensitivity analyses (no missing doses/data and using linear extrapolation) were generally consistent with results of the primary analyses. Changes in SvdH scores among the MRI sub-study patients at week 28 showed no significant difference between golimumab plus methotrexate therapy and placebo plus methotrexate (mean 0.49 vs 0.92; P=0.19). Radiographic SvdH scores demonstrated inhibition of structural damage progression by treatment with golimumab plus methotrexate as compared with placebo plus methotrexate in the overall study population but required double the number of patients (637 vs 318) and double the length of follow-up (28 vs 12 weeks) as needed for MRI to demonstrate this.	1

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26. Wakefield RJ, Freeston JE, O'Connor P, et al. The optimal assessment of the rheumatoid arthritis hindfoot: a comparative study of clinical examination, ultrasound and high field MRI. *Ann Rheum Dis* 2008; 67(12):1678-1682.	Observational-Dx	22 patients	To compare clinical examination and US with high field MRI (as the reference standard) for the detection of rearfoot and midtarsal joint synovitis and secondly tenosynovitis of the ankle tendons in patients with established RA.	Compared to the gold standard of MRI, for clinical examination (joint synovitis) the ranges for sensitivity, specificity and percentage exact agreement were 55%-83%, 23%-46% and 46%-60%, and for US were 64%-89%, 60%-80% and 64%-78%, respectively. Compared to the gold standard of MRI, for clinical examination (tenosynovitis) the ranges for sensitivity, specificity and percentage exact agreement were 0%-100%, 20%-91% and 55%-91%, and for US were 0%-67%, 86%-100% and 59%-86%, respectively.	3
27. Micu MC, Alcalde M, Saenz JI, et al. Impact of musculoskeletal ultrasound in an outpatient rheumatology clinic. *Arthritis Care Res (Hoboken)* 2012:[In press].	Observational-Dx	60 patients	To evaluate the impact of musculoskeletal US, as a complementary method to clinical assessment, on rapid diagnosis and therapeutic decisions in a busy outpatient rheumatology clinic.	Out of 60 patients (67 anatomical areas), musculoskeletal US was considered as necessary after clinical examination in 39 (65%) patients totaling 43 (64.17%) anatomical areas. An overall change of the initial clinical diagnosis was present in 60% of the areas (P=0.0175). In all (100%) areas the new diagnosis was more objective and detailed. An overall change of the initial systemic therapy was present in 25% (P=0.0014) and in 36% (P=0.095) for local therapy. A guided diagnostic aspiration was decided to be performed in 15% areas and a guided therapeutic injection in 22%.	4
28. Furey JG. Plantar fasciitis. The painful heel syndrome. *J Bone Joint Surg Am* 1975; 57(5):672-673.	Review/Other-Tx	116 patients	The author presents 13 years' experience with plantar fasciitis patients.	Of 116 patients with pain in the plantar portion of the heel, 19 proved on follow-up to have systemic disease as the etiology. Of these treated with phenylbutazone, 71% showed good results and a similar percentage benefited equally from injections of cortisone derivatives. Only 2 patients required surgical procedures, and these were successful in both.	4
29. Grasel RP, Schweitzer ME, Kovalovich AM, et al. MR imaging of plantar fasciitis: edema, tears, and occult marrow abnormalities correlated with outcome. *AJR* 1999; 173(3):699-701.	Review/Other-Dx	25 patients	To evaluate various MRI signs of plantar fasciitis and to determine if a difference in these findings exists between clinically typical and atypical patients with chronic symptoms resistant to conservative treatment.	The authors found signs on MRI that have not been described in the scientific literature for patients with plantar fasciitis. These signs included occult marrow edema and fascial tears. Patients with these manifestations seemed to respond to treatment in a manner similar to that of patients in whom MRI revealed more benign findings.	4

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30. Theodorou DJ, Theodorou SJ, Kakitsubata Y, et al. Plantar fasciitis and fascial rupture: MR imaging findings in 26 patients supplemented with anatomic data in cadavers. *Radiographics* 2000; 20 Spec No:S181-197.	Review/Other-Dx	26 patients	To evaluate the diagnostic capabilities of MRI in the assessment of the plantar aponeurosis with close anatomic correlation. The MRI features of plantar fasciitis and fascial rupture are described.	MRI delineated the anatomy of the plantar aponeurosis and perifascial soft tissues. The peroneal component was best visualized in prescribed sagittal oblique images. Perifascial edema was the most common finding of plantar fasciitis, and it was remarkable in those cases with acute fascial rupture.	4
31. Cardinal E, Chhem RK, Beauregard CG, Aubin B, Pelletier M. Plantar fasciitis: sonographic evaluation. *Radiology* 1996; 201(1):257-259.	Observational-Dx	15 patients; 15 asymptomatic volunteers	To evaluate the sonographic findings of plantar fasciitis.	Plantar fascia thickness was significantly increased in the heels in patients with plantar fasciitis (3.2-6.8 mm; mean, 5.2 mm +/- 1.13) compared with their asymptomatic heels (2.0-4.0 mm; mean, 2.9 mm +/- 0.70) (P<.0001) and compared with the heels of the patients in the control group (1.6-3.8 mm; mean, 2.6 mm +/- 0.48) (P<.0001). The proximal plantar fascia of 16 (84%) symptomatic heels were diffusely hypoechoic compared with none of the patients' asymptomatic heels and only one heel of a patient in the volunteer group. No fascia rupture, perifascial fluid collection, or calcifications were identified.	3
32. Frey C, Kerr R. Magnetic resonance imaging and the evaluation of tarsal tunnel syndrome. *Foot Ankle* 1993; 14(3):159-164.	Review/Other-Dx	33 patients with 40 feet	To determine the ability of MRI to help in the evaluation of tarsal tunnel syndrome.	21 feet eventually required surgery. MRI revealed an inflammatory or mass lesion in the tarsal tunnel in the majority of cases. The MRI findings were confirmed at surgery in 19 patients. The information provided by MRI can enhance surgical planning by indicating the extent of decompression required.	4
33. Kerr R, Frey C. MR imaging in tarsal tunnel syndrome. *J Comput Assist Tomogr* 1991; 15(2):280-286.	Review/Other-Dx	33 feet in 27 patients; 2 volunteers	To examine usefulness of MRI in tarsal tunnel syndrome.	MRI demonstrated a mass lesion in 5 feet, dilated veins or varicosities in 8 feet, fracture or soft tissue injury in 5 feet, fibrous scar in 2 feet, flexor hallucis longus tenosynovitis in 6 feet, and abductor hallucis muscle hypertrophy in one foot. Six feet were normal on MRI. The findings of MRI were confirmed in 17/19 patients that went to surgery.	4

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34. Bencardino J, Rosenberg ZS, Beltran J, Liu X, Marty-Delfaut E. Morton's neuroma: is it always symptomatic? *AJR* 2000; 175(3):649-653.	Observational-Dx	85 foot MR examinations	To assess the prevalence of clinically silent Morton's neuroma and also determine whether MRI reveals differences between symptomatic and clinically silent lesions.	The prevalence of Morton's neuroma in patients with no clinical evidence of this condition was 33% (19/57). 25 patients had symptomatic Morton's neuroma, 19 had Morton's neuroma based on MRI findings with no clinical manifestations, and 41 did not have Morton's neuroma. Slightly larger lesions were observed in the symptomatic group, although significant overlap was noted between the two groups. The mean transverse diameter of symptomatic neuromas was 5.3 mm (standard deviation, 2.14) compared with 4.1 mm (standard deviation, 1.75) for asymptomatic neuromas; this difference was marginally significant (P=0.05).	3
35. Terk MR, Kwong PK, Suthar M, Horvath BC, Colletti PM. Morton neuroma: evaluation with MR imaging performed with contrast enhancement and fat suppression. *Radiology* 1993; 189(1):239-241.	Review/Other-Dx	15 patients	To evaluate clinically suspected Morton neuroma with contrast material-enhanced MRIs.	In 6 patients, a tumor that conformed to the clinical findings was seen in the interdigital space; surgical findings in these patients correlated closely with the imaging findings in all patients. Patients without positive findings on MRIs tended to have less typical clinical findings and received nonsurgical treatment. In all patients, the lesions were best depicted with the combination of contrast-enhanced imaging and fat suppression; conventional MRIs either entirely failed to demonstrate the lesions or demonstrated the lesions less clearly.	4
36. Zanetti M, Strehle JK, Zollinger H, Hodler J. Morton neuroma and fluid in the intermetatarsal bursae on MR images of 70 asymptomatic volunteers. *Radiology* 1997; 203(2):516-520.	Observational-Dx	70 asymptomatic subjects; 16 symptomatic subjects	To determine the prevalence and size of presumed Morton neuromas and fluid in the intermetatarsal bursae on MRIs.	24 Morton neuromas were diagnosed in 21 subjects (prevalence, 30%). The transverse diameter of the neuromas was 3-7 mm (mean, 4.5 mm) vs 4-8 mm (mean, 5.6 mm) in symptomatic subjects; this difference was significant (P=.0075). The prevalence of fluid in the intermetatarsal bursa was 20%, 47%, 49%, and 0% for the first through fourth intermetatarsal spaces. The transverse diameter of the fluid collection was 1-4 mm.	3
37. Redd RA, Peters VJ, Emery SF, Branch HM, Rifkin MD. Morton neuroma: sonographic evaluation. *Radiology* 1989; 171(2):415-417.	Review/Other-Dx	100 patients	A prospective study was performed to evaluate the role of US in identifying, localizing, and quantifying morton neuroma.	134 intermetatarsal masses were demonstrated. 45 patients underwent surgical exploration, which revealed Morton neuromas.	4

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38. Lee MJ, Kim S, Huh YM, et al. Morton neuroma: evaluated with ultrasonography and MR imaging. *Korean J Radiol* 2007; 8(2):148-155.	Observational-Dx	20 neuromas from 17 patients	To compare the diagnostic accuracy of both US and MRI for the assessment of Morton neuroma and to evaluate whether or not the gadolinium contrast enhanced T1-weighted image increases the conspicuity of the lesion.	The detection rate of Morton neuroma was 79% for 14 neuromas from 11 patients who had undergone US followed by an operation. The detection rate was 76% for 17 neuromas from 15 patients who had undergone MRI and a subsequent operation. The mean size of the examined neuromas was 4.9 mm on the US images and it was 5.1 mm on the MRI studies. Ten neuromas (71%) were ≤5 mm as measured by US, and 3 neuromas were not detected, whereas on the MRI analysis, 10 neuromas (59%) were ≤5 mm and 4 neuromas were not visualized. Among the patients examined during postoperative follow-up, symptoms were completely relieved in 85% and the symptoms were partially relieved in 15%.	3
39. Perini L, Del Borrello M, Cipriano R, Cavallo A, Volpe A. Dynamic sonography of the forefoot in Morton's syndrome: correlation with magnetic resonance and surgery. *Radiol Med* 2006; 111(7):897-905.	Review/Other-Dx	40 forefeet in 38 patients	To demonstrate the efficacy of the dynamic study of the forefoot during lateral compression of the metatarsal heads (Mulder's manoeuvre) in the visualization of Morton's neuroma.	37 intermetatarsal masses were identified through dynamic US in the 40 forefeet investigated (two double localizations). This method was more effective than conventional US, which could only locate 25. In those forefeet investigated with MR, it was possible to confirm dynamic US findings in 16/22. In 1/6 cases unconfirmed by MR, a neuroma was removed following surgery. 20 masses (19 neuromas and one synovial ganglion) were found in the 18 forefeet treated by surgery.	4
40. Fessell DP, Jacobson JA. Ultrasound of the hindfoot and midfoot. *Radiol Clin North Am* 2008; 46(6):1027-1043, vi.	Review/Other-Dx	N/A	A review on US of the hindfoot and midfoot. Article makes the case that radiologists should continue to be experts in all aspects of musculoskeletal imaging, including US or the business will be taken over by other specialties.	Radiologists, with their expertise and years of training, are uniquely suited to apply this versatile modality to foot and ankle pathology.	4
41. Tuite MJ. MR imaging of the tendons of the foot and ankle. *Semin Musculoskelet Radiol* 2002; 6(2):119-131.	Review/Other-Dx	N/A	Review MR appearance of tendon pathology, including tendonosis/tendinopathy, tenosynovitis and peritendonosis, partial and complete tears, subluxation and dislocation, and entrapment.	No results stated in abstract.	4

Chronic Foot Pain
EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
42. Karasick D, Wapner KL. Hallux valgus deformity: preoperative radiologic assessment. *AJR* 1990; 155(1):119-123.	Review/Other-Dx	N/A	Review diagnosis of Hallux valgus deformity.	Hallux valgus deformity is not difficult to diagnose, but it must be evaluated carefully on radiographs to ensure use of the most efficacious surgical procedure for each patient.	4
43. Kuwano T, Nagamine R, Sakaki K, Urabe K, Iwamoto Y. New radiographic analysis of sesamoid rotation in hallux valgus: comparison with conventional evaluation methods. *Foot Ankle Int* 2002; 23(9):811-817.	Observational-Dx	58 feet in 29 patients with hallux valgus and 64 feet in 32 normal subjects	To compare new radiographic analysis of sesamoid rotation in hallux valgus with conventional evaluation methods.	The sesamoid rotation angle showed the highest correlation among the three parameters (r=0.817). Some cases had a disparity regarding the position of the sesamoids between the tangential view and the anterior-posterior view due to misclassification on the anterior-posterior view.	3
44. Smith RW, Reynolds JC, Stewart MJ. Hallux valgus assessment: report of research committee of American Orthopaedic Foot and Ankle Society. *Foot Ankle* 1984; 5(2):92-103.	Review/Other-Dx	N/A	Report of research committee of American Orthopaedic Foot and Ankle Society. Report includes the guideline for the study of hallux valgus in outline form, a study of roentgenological evaluation of sesamoid position.	N/A	4

Evidence Table Key

Study Quality Category Definitions

- *Category 1* The study is well-designed and accounts for common biases.
- *Category 2* The study is moderately well-designed and accounts for most common biases.
- *Category 3* There are important study design limitations.
- *Category 4* The study is not useful as primary evidence. The article may not be a clinical study or the study design is invalid, or conclusions are based on expert consensus. For example:
  a) the study does not meet the criteria for or is not a hypothesis-based clinical study (e.g., a book chapter or case report or case series description);
  b) the study may synthesize and draw conclusions about several studies such as a literature review article or book chapter but is not primary evidence;
  c) the study is an expert opinion or consensus document.

Dx = Diagnostic

Tx = Treatment

Abbreviations Key

CT = Computed tomography

MRI = Magnetic resonance imaging

NPV = Negative predictive value

PPV = Positive predictive value

RA = Rheumatoid arthritis

RPC = Receiver operating characteristic

RSD = Reflex sympathetic dystrophy

US = Ultrasound