PASIG PERFORMING ARTS SPECIAL INTEREST GROUP

ORTHOPAEDIC SECTION AMERICAN PHYSICAL THERAPY ASSOCIATION

APTA American Physical Therapy Association The Science of Healing. The Art of Caring.

PASIG MONTHLY CITATION BLAST: No.49 **April 2010**

Dear PASIG members:

Spring and blossoming trees are here in the East. Planning for CSM PASIG programming is well underway. Save the date: our next Combined Sections Meeting will be held in New Orleans, February 9 –12, 2011.

CSM abstract submission is open and the deadline will be here sooner than you think (June 2nd). I hope many of you will consider submitting an abstract from your performing arts research. Abstract topics can include pilot and full scientific research studies, case studies, clinical topics, or special interest reports. Go to http://www.apta.org/csm for more information and to connect to Scholar One Abstract Central for electronic submission. If PASIG members would like feedback on an abstract prior to submission, please contact me and either I or someone on the PASIG Research Committee will help you or recommend you to someone knowledgeable in your area.

Don't forget, the PASIG sponsors an annual student research scholarship. This award is to recognize students, who have had an abstract accepted to CSM, for their contribution to performing arts medicine and research. We encourage you to mentor your students in PA-related research and have them apply! If the PASIG Research Committee can assist students, please contact us. For more information on the research award please check our webpage (http://www.orthopt.org/sig_pa.php). Students with additional questions can contact PASIG President Leigh Roberts (lar@brventures.com).

Performing Arts continuing education, courses, and related conferences:

Orthopaedic Section Independent Study Course. *Dance Medicine: Strategies for the Prevention and Care of Injuries to Dancers*. This is a 6-monograph course and includes many PASIG members as authors. This home study course can be purchased at http://www.orthopt.org/independent2.php. PASIG members are currently developing a new Performing Arts Independent Study Course, so be on the lookout for its release.

Principles of Dance Medicine: Clinical Management of the Dancer Patient
July 15 – 18, 2010
New York, NY
Email: harkness@nyumc.org Web: www.danceinjury.org

Performing Arts Medicine Association (PAMA)
28th Annual Symposium on Medical Problems of Musicians and Dancers
July 29 – Aug 1, 2010
Snowmass, CO
Contact: http://www.artsmed.org/

International Association for Dance Medicine and Science (IADMS) 20th Annual Meeting
October 28 – 31, 2010
Birmingham, UK
Contact: http://www.iadms.org

If you know of other courses of interest to our membership, please send the information to: Amy Humphrey PT, DPT, OCS, MTC; ahumphrey@Bodydynamicsinc.com

For this April Citation BLAST, I've selected *Osteochondroma of the Proximal Fibula.* The general format is an annotated bibliography of articles from 2000 – 2010. However, as the literature is limited for this topic, I've included older articles. The PASIG Research Committee initiated this monthly Citation BLAST on performing arts-related topics in June 2005 in the hopes of encouraging our members to stay current in the literature and, perhaps, consider conducting research themselves. Each month we send a new list of performing arts (PA) citations to members of the PASIG to further the pursuit of PA-related scholarship. The BLASTS and updated libraries are posted on the PASIG webpage for our members to access and download. (Information about EndNote referencing software can be found at http://www.endnote.com, including a 30-day free trial).

Upcoming citation topics will include Pilates, Taping, Yoga, nutrition, and eating disorders. Anyone interested in contributing to one of these topics or to suggest a new special topic, please contact me.

As always, your comments, suggestions, and entry contributions to these Citation BLASTs are welcome. Please drop me an e-mail anytime.

Regards,
Shaw

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Osteochondroma of the Proximal Fibula

Recently, I saw a student dancer with complaints of lateral leg pain with jumping or pointework and intermittant parasthesias along her lateral leg-dorsal foot. She denied any trauma or

compression to the area, however I suspected some sort of peroneal nerve entrapment. On evaluation, all muscles were strong and sensation was normal. Compression near her fibula head reproduced her parasthesias. I referred her to our dance medicine orthopaedist for further work up to rule out a fibula stress fracture. On x-ray, she had a proximal osteochondroma.

Osteochondromas result from dysplasia of a peripheral growth plate, account for 40% of benign bone tumors, and occur most frequently at the long bones, with about 30% at the proximal fibula. Differential diagnosis includes fibula stress fracture and pathologic fractures of non-ossifying fibromas. Fibula stress fractures are relatively rare, accounting for only 10% of stress fractures in adults and 20% in children, and are most common in the distal region. Most are reported in runners, soldiers, and dancers from axial loading. Given the intense training of female dancers and issues of disordered eating and amenhorrea, a fibula stress fracture was possible.

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Al-Kashmiri, A. and J. S. Delaney (2007). "Case report: Fatigue fracture of the proximal fibula with secondary common peroneal nerve injury." Clin Orthop Relat Res **463**: 225-228.

Stress fractures of the proximal fibula are uncommon and usually result from axial loading, which is mostly described in runners. We report an unusual mechanism of such a fracture in a circus performer resulting from repetitive direct horizontal loading from a trapeze bar. In addition, the bony injury resulted in a secondary injury to the common peroneal nerve with corresponding weakness. Both injuries responded well to nonoperative treatment and the athlete had an excellent recovery with no residual symptoms. He was able to resume his training with the use of protective padding applied to the proximal legs. Fracture of the proximal fibula caused by direct repetitive stress to the bone with a secondary compression injury to the common peroneal nerve is a previously undescribed injury. We report a patient who presented with this injury, the possible mechanisms of such injury, its management, and outcome.

Bessler, W., G. Eich, et al. (1997). "Kissing osteochondromata leading to synostoses." Eur Radiol **7**(4): 480-485.

Our aim was to determine the incidence of synostoses in the bones of the lower limbs in patients with multiple cartilaginous exostosis (MCE) and use the available imaging to suggest the cause and mechanism of its development. Radiographs of the lower legs of 21 patients with MCE were reviewed. With the intention of demonstrating the exact site and extent of synostoses and other bone deformities, such as bone pressure atrophy or erosions in five patients, 8 proximal and 6 distal tibiofibular joints were examined by CT scans. No synostoses were present in 11 patients and 10 patients had 1 to 4 synostoses. Of these synostoses, 14 were localized below the knee joint and 9 above the ankle joint. A growing osteochondroma arising from tibia or fibula can cause an erosion in the contagious surface of the neighbouring bone. If facing osteochondromata are present in both bones and show an interlocking growth at abutting parts, on osseous fusion can take place with formation of a synostosis in the proximal or distal tibiofibular joint region. In adult patients with MCE and abundant osteochondromata synostoses between the neighbouring bones of the lower legs are common findings; they are always caused by coalescence of "kissing" osteochondromata.

Blair, W. F. and S. R. Hanley (1980). "Stress fracture of the proximal fibula." Am J Sports Med **8**(3): 212-213.

Bozkurt, M., M. Dogan, et al. (2004). "Osteochondroma leading to proximal tibiofibular synostosis as a cause of persistent ankle pain and lateral knee pain: a case report." Knee Surg Sports Traumatol Arthrosc **12**(2): 152-154.
This paper presents a case report of persistent ankle pain and lateral knee pain due to existing proximal tibiofibular synostosis.

Cardelia, J. M., J. P. Dormans, et al. (1995). "Proximal fibular osteochondroma with associated peroneal nerve palsy: a review of six cases." J Pediatr Orthop **15**(5): 574-577.
Osteochondroma of the proximal fibula is relatively common, but reports of this lesion in conjunction with peroneal nerve palsy have been scarce. Six patients with peroneal nerve palsy and fibular exostosis are presented with the results of electrical studies, radiographic evaluation, physical examination, and operative treatment. A wide variation in presentation and outcome was observed. Preoperative and postoperative electromyography and nerve-conduction studies are useful in evaluation. A heightened awareness of this entity is required to avoid permanent damage in an otherwise treatable condition.

DiFiori, J. P. (1999). Stress fracture of the proximal fibula in a young soccer player: a case report and a review of the literature. Med Sci Sports Exerc **31**(7): 925-928.
A 14-yr-old soccer player complained of a history of leg pain with activity that had been present for several weeks. There was no history of direct trauma. Tenderness was found over the lateral aspect of the leg, and radiographs showed an area of calcification along the shaft of the proximal fibula. Because of the unusual location of the findings and to exclude a tumor, magnetic resonance imaging (MRI) was obtained which confirmed the diagnosis of a proximal fibular stress fracture. The patient returned to full sport participation with a period of relative rest, splinting, and strengthening and flexibility training. This case describes an injury that has not been reported in young athletes and only rarely described in active adults. The literature regarding this injury is reviewed, and two injury patterns of proximal fibular stress fractures are described.

Garner, W. J. and J. H. Garner, Jr. (1992). Metatarsal fracture and osteochondroma of the proximal fibula. Am Fam Physician **45**(3): 1022-1024, 1033.

Gray, K. V., J. Robinson, et al. (2004). Splitting of the common peroneal nerve by an osteochondroma: two case reports. J Pediatr Orthop B **13**(4): 281-283.
Multiple exostoses is an autosomal dominant disease in which bony protuberances arise from the metaphyseal periphery. Most are asymptomatic but occasionally the tumors become troublesome, causing irritation to the surrounding tissues. While nerve compression by an adjacent osteochondroma has been reported, to our knowledge there are no reports of the tumor growing through the mid-substance of a nerve. This article reports two occurrences of an osteochondroma of the proximal fibula that was noted at surgery to grow through the common peroneal nerve, splitting it into two limbs. By reporting these cases, it is our hope to alert surgeons that this problem may occur, and care should be taken to identify the entire nerve prior to removal of the osteochondroma.

Hazmy, W. (2001). Peroneal nerve palsy secondary to proximal fibular osteochondroma--a case report. Med J Malaysia **56 Suppl C**: 89-90.
The author reports a case of a 11-year old child presented with peroneal nerve entrapment secondary to proximal fibular osteochondroma, with complete recovery of function following the excision of the tumor.

Hod, N., Y. Levi, et al. (2007). Scintigraphic characteristics of non-ossifying fibroma in military recruits undergoing bone scintigraphy for suspected stress fractures and lower limb pains. Nucl Med Commun **28**(1): 25-33.

INTRODUCTION: Non-ossifying fibroma (NOF) is the most common fibrous bone lesion in children and young adults. This benign lesion is not a true neoplasm but is considered a developmental defect. Clinically, the lesion is asymptomatic and has a predilection for the long bones, particularly the femur and the tibia. NOF that ossify can show increased uptake on bone scintigraphy. Although the radiographic and histopathological findings of NOF have been well described, the scintigraphic findings of the abnormality have only been incidentally mentioned in the literature. AIM: To document the scintigraphic features of NOF in a group of military recruits undergoing bone scintigraphy for suspected stress fractures. Features to differentiate co-existent NOF and stress fractures lesions are discussed. MATERIALS AND METHODS: Eighty-three military recruits, 67 male and 16 female, aged 18 to 22 years (mean, 19.4 years), who underwent Tc-methylene diphosphonate bone scans for suspected stress fractures or because of pain of the lower limbs had 91 focal lesions on bone scan which on further evaluation demonstrated characteristic radiographic findings of NOF. We evaluated the anatomical site of the lesions, documented the intensity of uptake on bone scan and compared the findings with the radiographic description of the lesions. Comparison with the characteristic scintigraphic pattern of co-existent stress fracture lesions and with previously reported data was performed. RESULTS: A total of 91 NOF lesions were detected. Overall, 89% of NOF were located about the knee. Anatomic distribution of NOF lesions was as follows: 43 (47.3%, R=25, L=18) were located in the postero-medial aspect of the distal femur, 18 (19.8%, R=12, L=6) in the postero-medial aspect of the proximal tibia, 11 (12%, R=5, L=6) in the postero-lateral aspect of the distal femur, 10 (11%, R=4, L=6) in the postero-lateral aspect of the distal tibia, 4 (4.4%, R=2, L=2) in the postero-lateral aspect of the proximal tibia, 3 (3.3%, L=3) in the antero-central aspect of proximal tibia, 1 (1.1%, L=1) in the antero-lateral aspect of distal femur, 1 (1.1%, L=1) in the medial-central aspect of the proximal tibia. In this series NOF lesions were not found in the fibula. Eighty five of 91 (93.4%) of all NOF were located at the metaphysis of the long bones, 2/91 (2.2%) were located at the meta-diaphyseal region of the long bones and only 4/91 (4.4%) of the lesions were located at the diaphysis. All the NOF showed variable degrees of focal increased tracer uptake on bone scan. The bone scan appearance of the focal lesions was: faint uptake in 29 (31.9%), mild uptake in 27 (29.7%), moderate uptake in 28 (30.7%) and intensely increased uptake in seven (7.7%). The radiographic description of the NOF was: lucent NOF three (3.3%), mixed sclerotic and lucent 68 (74.7%) and sclerotic in 20 (22%). Most of the NOF which demonstrated moderate or intensely increased tracer uptake had mixed lucent and sclerotic radiographic appearance (healing). Most of the sclerotic lesions (healed) showed faint uptake. Co-existent stress fractures were predominantly located in the diaphysis of the long bones, characteristically in the postero-medial aspect of the mid-third of the tibia or femur. CONCLUSIONS: Military recruits undergoing bone scan for suspected stress fracture might have incidental findings which require further evaluation. Focal lesions on bone scan located about the knee in the lateral aspect of the distal femur or lateral aspect of the proximal tibia in the metaphyseal region of these bones are not compatible with the characteristic scintigraphic features of stress fracture. Such a finding should raise the suspicion for other bony lesions such as NOF, which is commonly located in this region. During the healing phase of the NOF which commonly occur in the age range of this group, the lesion shows mild-to-moderate increased tracer uptake on bone scan. Plain film radiography is usually diagnostic and patients are followed up conservatively. Some NOF lesions are still indistinguishable from stress fracture or splints on bone scan.

Hong, S. H. and I. T. Chu (2009). Stress fracture of the proximal fibula in military recruits. Clin Orthop Surg **1**(3): 161-164.

BACKGROUND: We wanted to report on stress fracture of the proximal fibula and to suggest the pathomechanism of this fracture. METHODS: Between April 2004 through April 2005, the military recruits who complained of leg pain during the 6 weeks basic training in the Republic of Korea Marine Corps education and training group were evaluated according

to their clinical manifestations and plain radiographs. RESULTS: Twelve recruits of 635 recruits who complained leg pain were diagnosed as having fibular stress fracture. Eleven cases (10 recruits) appeared at the junction of the proximal and middle 1/3 of the fibula and 2 cases (2 recruits) were in the middle 1/3 of the fibula, as assessed radiologically. Tenderness was the most reliable clinical manifestation. All the fractures occurred after repetitive walking or jumping in a squatting position. Conservative treatments that included bed rest, immobilization and non-steroidal anti-inflammatory drugs administration according to the symptom severity were satisfactory. CONCLUSIONS: Proximal fibular stress fracture is not rare in military recruits. The shearing force on the proximal fibula and the repetitive stress by walking or jumping in a squatting position contribute to the stress fracture of the proximal fibula.

Korpelainen, R., S. Orava, et al. (2001). Risk factors for recurrent stress fractures in athletes. Am J Sports Med **29**(3): 304-310.

Our aim was to identify factors predisposing athletes to multiple stress fractures, with the emphasis on biomechanical factors. Our hypothesis was that certain anatomic factors of the ankle are associated with risk of multiple stress fractures of the lower extremities in athletes. Thirty-one athletes (19 men and 12 women) with at least three separate stress fractures each, and a control group of 15 athletes without fractures completed a questionnaire focusing on putative risk factors for stress fractures, such as nutrition, training history, and hormonal history in women. Bone mineral density was measured by dual-energy x-ray absorptiometry in the lumbar spine and proximal femur. Biomechanical features such as foot structure, pronation and supination of the ankle, dorsiflexion of the ankle, forefoot varus and valgus, leg-length inequality, range of hip rotation, simple and choice reaction times, and balance in standing were measured. There was an average of 3.7 (range, 3 to 6) fractures in each athlete, totaling 114 fractures. The fracture site was the tibia or fibula in 70% of the fractures in men and the foot and ankle in 50% of the fractures in women. Most of the patients were runners (61%); the mean weekly running mileage was 117 km. Biomechanical factors associated with multiple stress fractures were high longitudinal arch of the foot, leg-length inequality, and excessive forefoot varus. Nearly half of the female patients (40%) reported menstrual irregularities. Runners with high weekly training mileage were found to be at risk of recurrent stress fractures of the lower extremities.

Lacroix, H. and J. N. Keeman (1992). An unusual stress fracture of the fibula in a long-distance runner. Arch Orthop Trauma Surg **111**(5): 289-290.

A stress fracture of the proximal fibula in a young long-distance runner is reported. Such fractures are rare. The literature is reviewed and diagnosis and treatment are discussed.

Lehman, T. P., M. J. Belanger, et al. (2002). Bilateral proximal third fibular stress fractures in an adolescent female track athlete. Orthopedics **25**(3): 329-332.

Proximal fibular stress fracture is an uncommon injury in athletes but has been frequently reported in the military population. Although the true incidence is unknown and its pathophysiology is not completely understood, proximal fibular stress fracture is believed to be a rare injury and awareness of it will help clinicians make the proper diagnosis and provide appropriate treatment.

Losito, J. M., R. C. Laird, et al. (2003). Tibial and proximal fibular stress fracture in a rower. J Am Podiatr Med Assoc **93**(4): 340-343.

Proximal fibular stress fractures are rare injuries that usually result from jumping and running activities of military recruits and athletes. This article describes a female university athlete with proximal lateral leg pain diagnosed by means of a triphase bone scan as proximal fibular stress fracture and proximal to middle one-third tibial stress fracture. This case highlights the need to examine not only the sport but also the athlete's training habits to

identify possible factors contributing to the injury. Body type, biomechanics, and gender are also possible etiologic factors.

Monteleone, G. P., Jr. (1995). Stress fractures in the athlete. Orthop Clin North Am **26**(3): 423-432.
Stress fractures are common injuries in the athletic population. High clinical suspicion is required for the diagnosis because of vague historical and physical features. Bone scans are the gold standard of diagnosis, though MR imaging and CT may be helpful adjuncts. Most stress fractures do very well with the nonsurgical treatment approach. Some fractures of the proximal diaphysis of the fifth metatarsal, femoral neck fractures, and any displaced, completed fracture require surgery. Consideration must also be given for correctable risk factors and preventive measures must be addressed.

Myers, S., D. Bell, et al. (2002). Repetition of an unusual stress fracture in an anorexic man: a case report. J Orthop Surg (Hong Kong) **10**(2): 210-212.
Stress fractures of the fibula commonly occur distally in runners, whereas stress fractures of the proximal fibula are uncommon and typically occur in jumpers. Furthermore, it is rare for a stress fracture to be repeated in the same bone. We report a case of a repeated stress fracture of the proximal fibula in a male runner with abnormal gait that primarily involved excessive pronation. Unusual risk factors in this case were anorexia nervosa and use of an inhaled corticosteroid. The patient was treated conservatively, and healing of the fracture was completed at 12 weeks.

Newberg, A. H. and L. Kalisher (1978). Case report: an unusual stress fracture in a jogger. J Trauma **18**(12): 816-817.
Stress fractures of the proximal fibula are uncommon, but do occur in the distal fibula in long-distance runners. A case is presented of a 71-year-old jogger who presented with a 2-month history of left knee pain. Radiographs showed an apparent destructive lesion of the proximal fibula which resembled a malignant bone lesion. Excision revealed a healing fracture.

Orava, S., J. Puranen, et al. (1978). Stress fractures caused by physical exercise. Acta Orthop Scand **49**(1): 19-27.
A series of 142 stress fractures caused by sporting activities and physical exercise is presented. 121 fractures occurred in athletes and 21 in non-competitive sportsmen. Distance runners presented with 68 fractures, skiers 12, sprinters 10, orienteering runners 9, vaulters 3, and football-players 3 fractures. Athletes engaged in other events had fewer stress fractures. 76 fractures occurred in the tibia, 26 in the metatarsal bones, 20 in the fibula, 5 in the femoral neck, 4 in the femoral shaft, and 2 in the metacapal bones, lower pubic arch and sesamoid bones of the first MTP-joint. There was one fracture of each of the following: the humeral shaft, the ulna, the vertebral arch of L 5, the tarsal navicular and the proximal phalanx of the fifth toe. The treatment was generally a pause in training for 4-6 weeks, on the average. Running caused most of the stress fractures; the rest followed jumping exercises. The athletes mostly developed stress fractures during a period of alteration from one training session to another or during the preparation period close to the competition season. Joggers usually developped stress fractures 2-4 months after the beginning of regular training.

Peiro, V., M. A. Herrador, et al. (2003). Bilateral stress fracture of the proximal fibula in a young soccer player on bone scanning. Clin Nucl Med **28**(1): 49-51.

Peterson, H. A. (1989). Multiple hereditary osteochondromata. Clin Orthop Relat Res(239): 222-230.

Multiple hereditary osteochondromata is a disorder consisting of multiple projections of bone (exostoses) capped by cartilage. The lesions are most numerous in the metaphyses of long bones but may appear on diaphyses of long bones and on flat bones and vertebrae. The transmission is autosomal dominant. Sarcomatous transformation is uncommon and probably occurs in fewer than 1% of patients. The more common indications for surgical excision of lesions are pain, growth disturbance, compromised joint motion, cosmesis, and secondary impingement of tendon, nerve, or vessel. Excision of the lesions is effective in relieving pain, improving cosmesis and joint motion, and removing secondary impingement of tendon, nerve, or vessel, and may retard or prevent progressive disturbance of osseous growth. Wrist and ankle deformities are often associated with relative shortening and bowing of the ulna and fibula, respectively; tilt and tapering of the distal radial and tibial epiphyses; and distal radioulnar and tibio-fibular diastasis. These deformities can be effectively treated by ulnar and fibular lengthening combined with hemiphyseal stapling of the distal radius and tibia. Progressive genu valgum is well corrected by placement of staples over the medial side of the physis of the distal femur or proximal tibia or both.

Reich, I., G. Merkel, et al. (1993). [Isolated proximal fibula fracture in Marfan syndrome]. Chirurg **64**(11): 975-977.

An isolated fracture of the proximal fibular shaft without associated tibial or ankle injury and without resulting from direct violence is extremely rare. This report presents a case of an unusual isolated proximal fibular fracture (stress-fracture) in a female tennis-player with Marfan-syndrome. The literature is reviewed and diagnosis, treatment and etiology are discussed.

Richter, E. (1993). [A stress fracture following osteosarcoma in a child--differential diagnosis]. Aktuelle Radiol **3**(2): 112-114.

1 1/2 years following resection of an osteosarcoma of the right proximal fibula, pain and roentgenologic lesions of the right tibia at exactly the same level were first of all suspicious of tumour relapse. Analysis of the findings of conventional films revealed the diagnosis of stress fracture.

Ruohola, J. P., M. J. Kiuru, et al. (2006). Fatigue bone injuries causing anterior lower leg pain. Clin Orthop Relat Res **444**: 216-223.

Shin splints, or stress-related anterior lower leg pain, seem to arise from numerous causes, including stress fractures. We retrospectively reviewed 154 consecutive military patients who had magnetic resonance imaging during a 5-year period for stress-related anterior lower leg pain. Using magnetic resonance imaging, 143 bone stress injuries were diagnosed in 86 of the 154 (56%) patients. The incidence of bone stress injury requiring orthopaedic consultation and magnetic resonance imaging among recruits during the 5 years was 117 per 100,000 person years in military service. The bone stress injury was located in the tibia in 141 (99%) patients. Of these injuries, 80 (57%) were located in the distal (1/3) of the tibial shaft, 42 (30%) in the middle (1/3), 14 (10%) in the proximal (1/3), and five (3%) in the medial condyle. The locations of tibial stress injuries related to the magnetic resonance imaging grades. Almost all lower leg fatigue bone stress injuries were located in the tibia, and the distal lateral shaft was affected most often. When used early after onset of symptoms, magnetic resonance imaging provides accurate diagnosis to ensure appropriate treatment, especially when dealing with exercise-induced lower leg pain in physically active patients. Level of Evidence: Diagnostic study, Level II (development of diagnostic criteria on consecutive patients [with universally applied reference "gold" standard]). See the Guidelines for Authors for a complete description of levels of evidence.

Strudwick, W. J. and S. B. Goodman (1992). Proximal fibular stress fracture in an aerobic dancer. A case report. Am J Sports Med **20**(4): 481-482.

Woods, M., R. Kijowski, et al. (2008). Magnetic resonance imaging findings in patients with fibular stress injuries. Skeletal Radiol **37**(9): 835-841.

OBJECTIVE: The objective was to evaluate magnetic resonance imaging (MRI) findings in patients with fibular stress injuries. MATERIALS AND METHODS: The study group consisted of 20 patients with clinically diagnosed fibular stress injuries who were evaluated with MRI. Radiographs were performed in 14 of the 20 patients. The MRI examinations and radiographs were retrospectively reviewed in consensus by two musculoskeletal radiologists. RESULTS: All 20 patients with clinically diagnosed fibular stress injuries had periosteal edema and bone marrow edema within the fibula on MRI. The periosteal reaction and bone marrow edema were present within the distal fibula in 14 patients, the middle fibula in 1 patient, and the proximal fibula in 5 patients. The periosteal reaction was located on the anterior cortex in 1 patient, the posterior cortex in 4 patients, the lateral cortex in 11 patients, and circumferentially distributed throughout the cortex in 4 patients. Nine patients had abnormal T1 and T2 signal intensity within the fibular cortex. Initial and follow-up radiographs showed periosteal reaction in 15% and 50% of patients with fibular stress injuries respectively. CONCLUSIONS: The majority of fibular stress injuries involve the lateral cortex of the distal fibula.

Yoo, J. H., K. D. Min, et al. (2009). A case of extension loss of great toe due to peroneal nerve compression by an osteochondroma of the proximal fibula. Arch Orthop Trauma Surg.

The authors present a case of extension loss of great toe caused by entrapment neuropathy of a peroneal nerve due to an osteochondroma of the proximal fibula. Plain radiographs revealed no bony abnormality around the foot or ankle, but a sessile exophytic bony growth at the proximal fibula. A positive Tinel sign in this area led us to a suspicion of compressive neuropathy of the peroneal nerve, and a subsequent electrophysiologic study confirmed the entrapment neuropathy. The peroneal nerve was decompressed by excisional biopsy. At 3 months postoperatively, normal full extension of the great toe was completely restored. The current case deserves attention in that the only clinical manifestation of peroneal nerve entrapment neuropathy by the osteochondroma at the fibular neck was extension loss of great toe.