PEDAL MYCETOMA MIMICKING PLANTAR FIBROMA

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My disclosure is in the Final AOFAS Program Book.

I have no potential conflicts with this presentation.
Case Report

- A 47-year-old fit and well female of African origin
- Two year history of a growing lump on the sole of the foot, atraumatic
- The patient was not immunosuppressed or diabetic and was not on steroids, no other medical problems
- Isolated nodular lesion on the sole of the right foot, at the instep with intact skin, and no sinus formation.
- The working diagnosis was a plantar fibroma
- Differential diagnosis: inter-metatarsal neuroma, lipoma, plantar fasciitis, aspergillosis, ganglion and warts
- Ultrasound showed multiple small hypoechoic locules in the subcutaneous fat overlying the plantar pleural cysts
- The cysts measured 3-5 mm and contained internal echoes and some linear hypoechoic areas suggestive of parasitic infection
- Excision biopsy showed a fibro-fatty lump was which confirmed pedal mycetoma.
- She made a good recovery after surgery alone, with no signs of recurrence after one year of follow-up.
Investigations

- Figure 1: Ultrasound appearance of the excised lump showing multiple small hypoechoic locules present in the subcutaneous fat overlying the plantar pleural cysts

- Figure 2: Macroscopic features of the excised fibro-fatty lump which was located in the subcutaneous plane, with no local spread. It was excised completely, without breaching the...
Histological appearance of the lesion

- **Figure 3**: Haematoxylin & Eosin (H&E) staining of the specimen showing a granulomatous inflammation with a micro-abscess containing a granule.

- **Figure 4**: A closer view showing a granule within the micro-abscess.
Histology (continued)

- Figure 6: PAS staining of the specimen was positive (indicating that this is of fungal origin not bacterial origin)
- Figure 7: High power view of the PAS staining clearly showing fungal spores and hyphae
Discussion

- Mycetoma is a tropical infection that follows puncture wounds in patients aged 20-50 years, especially those who walk bare-footed.
- The causative organisms have geographical variations and are bacterial (actinomycetoma) or fungal (eumycetoma) in origin.
- The fungal (eumycetoma) organisms include Madurella mycetoma, Madurella grisea, and pseudoalleschia.
- The actinomycetoma are caused by higher bacteria such as Norcadia and Streptomyces species.
- The lesion typically presents as a localised painless subcutaneous mass, draining sinuses and fungal grains consisting of Mycetoma, and when extensive and chronic it is referred to as Madura Mycosis or Madura foot.
- Pedal Mycetoma has been reported in up to 70% of the total cases, commonly affecting the dorsal aspect of the forefoot.
- Mycetoma affects soft tissues and bone through direct local spread; extra-pedal mycetoma can spread through lymphatics, but this is rare.
- The clinical features of mycetoma begin initially with a subcutaneous swelling, which becomes a nodule, with gradually increasing induration, rupture, sinuses and discharge of fungal grains.
- There may be swelling and cellulitis of the affected limb, with or without systemic features, depending on the duration of the symptoms.
- The diagnosis is mostly clinical especially in endemic countries where advanced cases are often encountered.
Our patient presented early with a small subcutaneous lump on the sole of her foot, not associated with sinuses or discharge as in more advanced cases. The nodule was initially painless, but gradually became uncomfortable and interfered with walking as well as shoe wear. Therefore, Ultrasound was used to expedite the diagnostic work-up and prepare her for surgery. MRI can also be helpful in establishing the diagnosis with dot-in-circle appearance; high intensity lesion on T2 images with a tiny central low-signal focus representing fungal grains within inflammatory granulomata. This sign has also been described as a highly specific MRI and Ultrasonographic sign of Mycetoma. Fungal stains can also be done through microscopy of any visible discharge. Cytology, Histology, Enzyme linked immunosorbent assay (ELISA), Immunohistochemistry, and DNA sequencing have also been successfully used.
Treatment of Mycetoma

- The treatment of choice is surgical excision with wide margins.
- Antifungal or antibiotic treatment following surgical excision, are debatable due to variable results.
- Antifungal and antibiotic treatment can be used depending on the type of organism causing the lesion.
- For Actinomycetoma, combination therapy with trimethoprim-sulfamethoxazole, dapsone and streptomycin has been used. Rifampicin has been used in resistant cases.
- Azole treatment is the recommended regime for small Eumycetoma lesions in the extremities.
- Madurella mycetomatis may respond to ketoconazole, P. boydii (S. apiospermum) may respond to itraconazole. Other agents of Eumycetoma may respond intermittently to itraconazole or amphotericin B.
- The lesion was an isolated nodule, and was excised with a wide margin, and no sign of local infection spread was observed in theatre.
- Therefore, we opted not to use antifungal or antibiotic treatment following surgical excision due to the complete resolution of symptoms, and absence of recurrence after two years of follow-up.
References

- Ania BJ, Asejo M, Kiel RJ; *Mycetoma*. Mycetoma, eMedicine, Aug 2008