Eumycetoma: A Clinical Overview

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Definitions

- Eumycetoma presents as a localized, chronic granulomatous mycotic infection of cutaneous and subcutaneous tissue. In progressive cases bone, and lymph nodes are compromised. The etiologic basis of infection is via hyaline and pigmented moulds most commonly found in soil.* Usually because of poor hygiene and trauma these agents are inoculated via direct contact.

- Endemic regions are typically tropic and sub tropic areas.

Note area between redlines specifically areas shaded with red dots denotes high concentration of fungi species.

• Sudan a highly endemic region Graphic taken from University of Khartoum I.E.D

Taken from Atlas of Fungal Infections Carol A Kaufman 2ed : Springer

Note: distal appendages mostly infected.

Case Report 1

- CC:38 year old male presented with a swollen, draining right foot.
- History of Illness: In 1987, A growth developed between 4th & 5th digit in foot and painless edema (swelling).
- Pt. went to another hospital, diagnosed w/ fungal infection and underwent unknown operation.
- Edema resolved following procedure.
Case Report 1 (cont.)

• In June 2001, symptoms resumed, characterized by distal edema and pain.
• Localized to lateral right foot
• Informed that x-ray revealed “dislocation” And Pt. foot placed in a cast for 1 month.
• Upon removal condition progressed to:
• Discharging pus & Black Granules
• Pt had difficulty walking

Case Report 1 (cont.)

• Review of systems: Unremarkable, no fever
• Past Medical History: 1987 & 2001
• Medications: Zero
• Family History: Noncontributory.
• Social History: Native Kenyan farmer, works w/o shoes.
• Physical Examination: Bp 100/60mm Hg, P 74, RR 18, Tmax 36.5,
  Right Foot: edematous non tender. Multiple draining sinus tracts discharging frank pus and black cuboid granules. No lymphadenopathy palpable.

  Figure 1.  Multiple sinuses were present on the right foot.

  Figure 2.  Black, cuboid granules discharged via sinuses.

Case Report 1 (cont.)

• Diagnostic and Surgical Findings
• X-ray: osteolysis, midtarsal joint destruction
• Distal incisions: sinus tracts contained black granules and granulation tissue (consistent with eumycetoma.
• Figure 3: Discrete collections of fungal organisms.
• Figure 4: Thick walled Chlamydoconidia
• Pathological findings consistent with eumycotic mycetoma “Madura Foot”

Case Report 1 (cont.)

Diagnosis

- Morphology most closely resembled either Curvularia geniculata or Leptosphaeria senegalensis.*Unable to culture due to lack of facilities.
- Pathological and Clinical findings consistent with eumycotic mycetoma, commonly referred to as “Madura Foot”

Case Report 1 (cont.)

Treatment: Pt. discharged w/o specific medical therapy
- A review of literature w/ regard to species and availability suggests that a combination of surgical excision and anti fungal is standard and appropriate.*
- Ketoconazole, Amphorectin B & Terbinafine (Administered over long periods of time)
- Ketoconazole is available in Kenya
- Pt scheduled for 1 month follow up, yet to date has not returned to hospital

Case Report 2

- Eumycetoma not endemic to Morocco. (i.e. Rare)
- CC: Ahmed 47yr old male presenting w/ Fistulated tumefaction, localised to left popliteal space.
- Pt. started w. small nodule above knee 12yrs ago, nodule surgically removed. yet no histopathology was done(not diagnosed as infection and treated.)

Case Report 2 (cont.)

- Ze facts…
- Pt. radiology data normal, Inflammation due to presence of black grains suspected fungal origin
- Mycological exam of grains provides solid diagnosis, after culturing fungi confirms a case of Madurella Mycetomatis
- Out of 44 cases reported since 1960 only four (isolated) observed to be M.mycetomatis.*
- Major Tunisian study of 13 cases six of the pathologies were of fungal origin and 3 observed to be
M. mycetomatis.

- Typically eumycetoma Tropical and Rural not Arid and Urban
- 2 hypothesis: * inoculated poor surgical hygiene or * classic direct cutaneous trauma.
- La lesion initiale du mycetome fongique est un nodule sous-cutane indolore evoluant progressivement.*

**Case Report 2 (cont.)**

- Review of systems:
- Past Medical History: 1993 presented w/ new nodule left popliteal, painless “indolore”, 1995 surgically treated, no Histopatho exam
- Medications: none
- Family History: non contributory
- Social History: Native Moroccan, Larache hometown is urban and 1hr north of Rabat.
- Physical Examination: Focused primarily on CC, (Left Knee, Popliteal Space)

**Case Report 2 (cont.)**

- Journal de Mycologie Médicale 16 (2006) 174 Figure 1 Eumycetoma: inflammatory fistulated tumor.
- Au moment de l'examen, le patient présentait une masse prenant tout le creux poplité gauche, gênant la marche, polyfistulée avec une peau en regard fine rouge et violacée, mesurant $15 \times 20 \text{ cm}$, adhérente aux plans superficiel et profond.*

**Case Report 2 (cont.)**

- Journal de Mycologie Médicale 16 (2006) 174 Figure 2 Fungal grains.
- hématique contenant des petits grains de couleur noir

**Case Report 2 (cont.)**

- Journal de Mycologie Médicale 16 (2006) 174 des filamentés septes de $2 - 5 \mu m$ de diamètre présentant des dilatations terminales donnant un aspect de vésicules.
- Figure 3 Examen direct d’un grain fongique ($x$ 400).

**Case Report 2 (cont.)**

- Journal de Mycologie Médicale 16 (2006) 174 Figure 4 Culture de Madurella mycetomatis sur Sabouraud. L’incubation avait duré environ trois semaines à $37 \degree \text{C}$ et un mois à $25 \degree \text{C}$

**Case Report 2 (cont.)**

- Figure 5 (6) Filaments mycéliens septes contenant de nombreuses chlamydoconidies.
- ($x$ 400). Septated Hyphae

**Case Report 2 (cont.)**

- Diagnosis and Lab Findings
- Madurella Mycetomatis (species)
- Black Grains (eumycetoma)
• Fungi morphology: septae hyphae and numerous chlamydoconidia
• Initial nodule progressed to fistula
• Cultured on Sabouraud Agar 3 weeks @ 37 celsius, and 1 month at 25 celsius

Case Report 2 (cont.)
• Treatment Plan & Follow Up
• Pt. placed on Ketoconazole 400mg(1yr)
• Treatment in conjunction w/ Surgical excision to remove tumor.*(Most Effective)
• Resolved after 4 months(favorable)
• Treatment was designed relative to *volume of tumor (15 x 20cm)
• Pt. should be followed for up to 3yrs*
• Since last appt, Pt “lost and has not been seen”

References

References Cont.
• Atlas of Fungal Infection, Mandell, Gerald L. Kauffman, Carol A (Ed) 2nd ed. 2007;pp 243-265
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