The Mycetoma Research Center
University of Khartoum

Mycetoma

Standardising Surgical Excellence in Mycetoma Care

Document ID: MRC-SOP-SURG-01

15th April 2023

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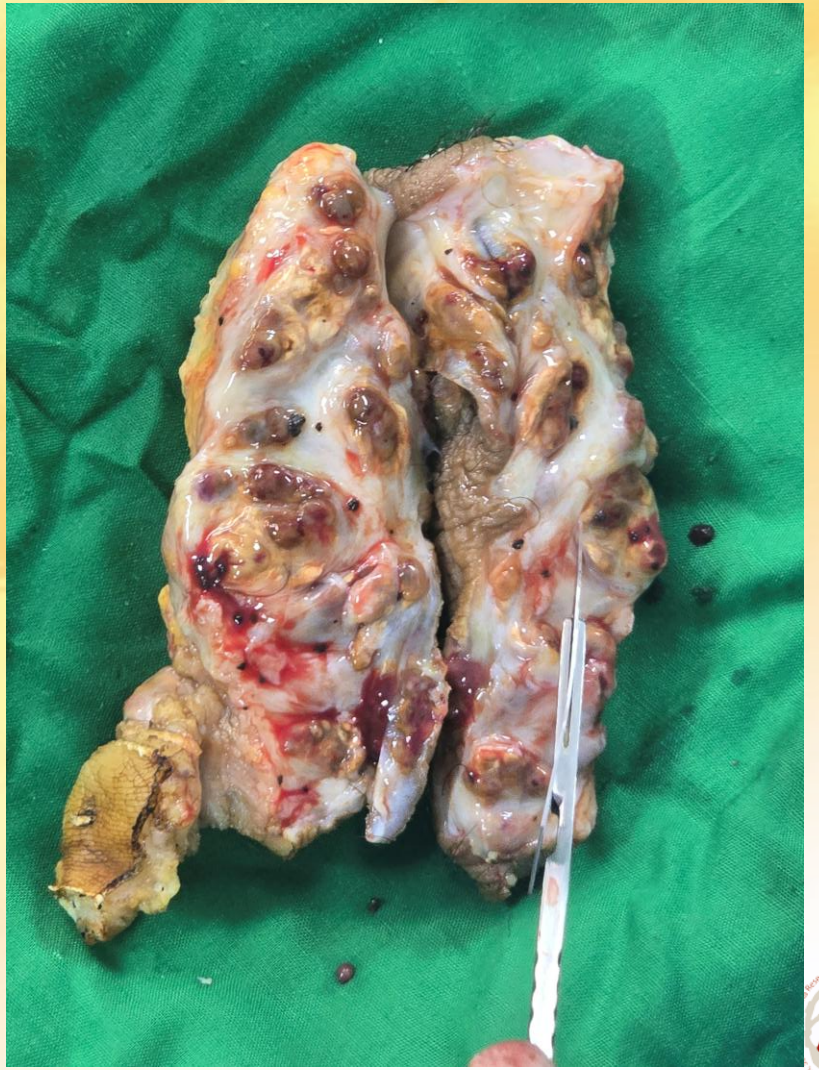
Background

- The MRC Surgical SOP aims to transition mycetoma care from radical amputation to early, radical "En Bloc" excision.
- By treating the infection like a localised tumour and preserving the fibrous capsule, the protocol aims to slash recurrence rates.
- Key strategies include ultrasound-guided mapping, "No-Touch" surgical techniques, and extended post-operative medication and care.



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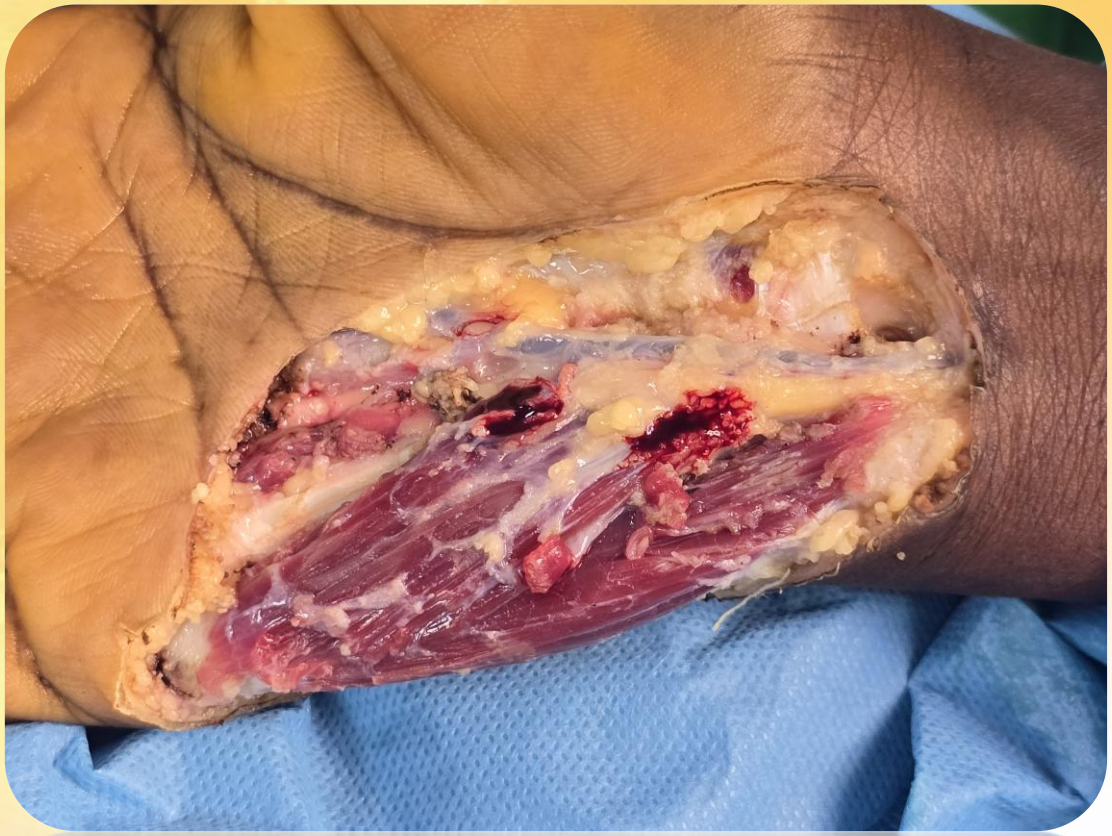
Background

- By standardising these procedures across all MRC and WHO-affiliated units, it aims to achieve the "MRC Triple-C"
  - Confirmation of the lesion
  - Capsule integrity during surgery
  - Continuity of care
- Ultimately, reducing the global need for life-altering amputations across both urban and mobile field units to prevent permanent disability.



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Target Group

- Surgeons
- Surgical Assistants
- Scrub Nurses

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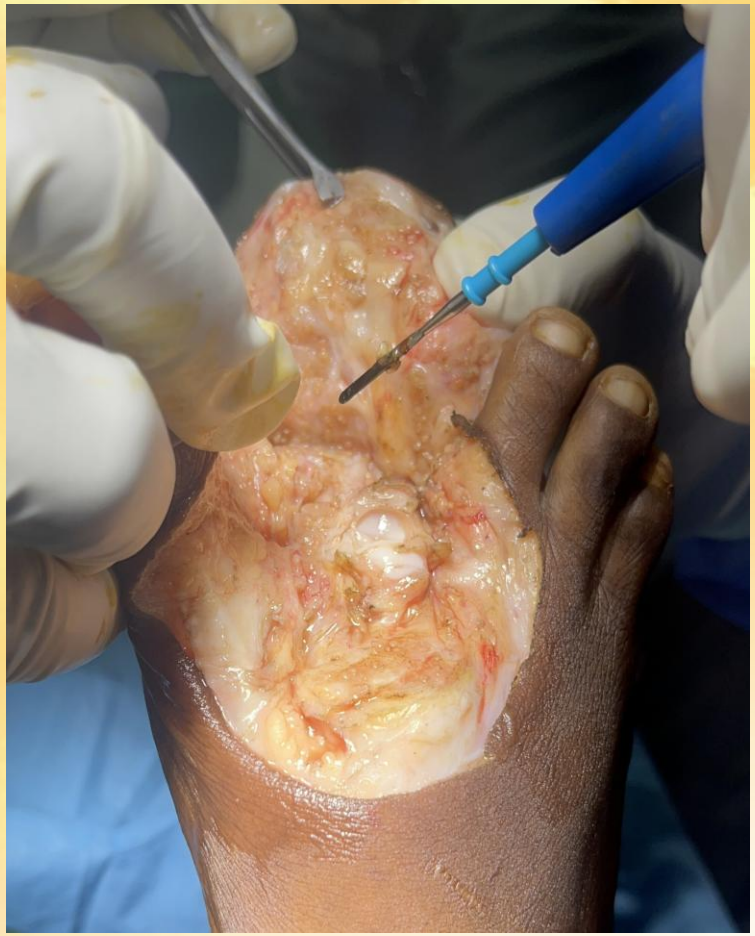
Objectives

- To standardise the surgical management of mycetoma
- To achieve clinical cure and minimise the risk of intraoperative seeding and recurrence.



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Pre Operative Requirements

Clinical Assessment:

- It includes a thorough and meticulous history and clinical examination.

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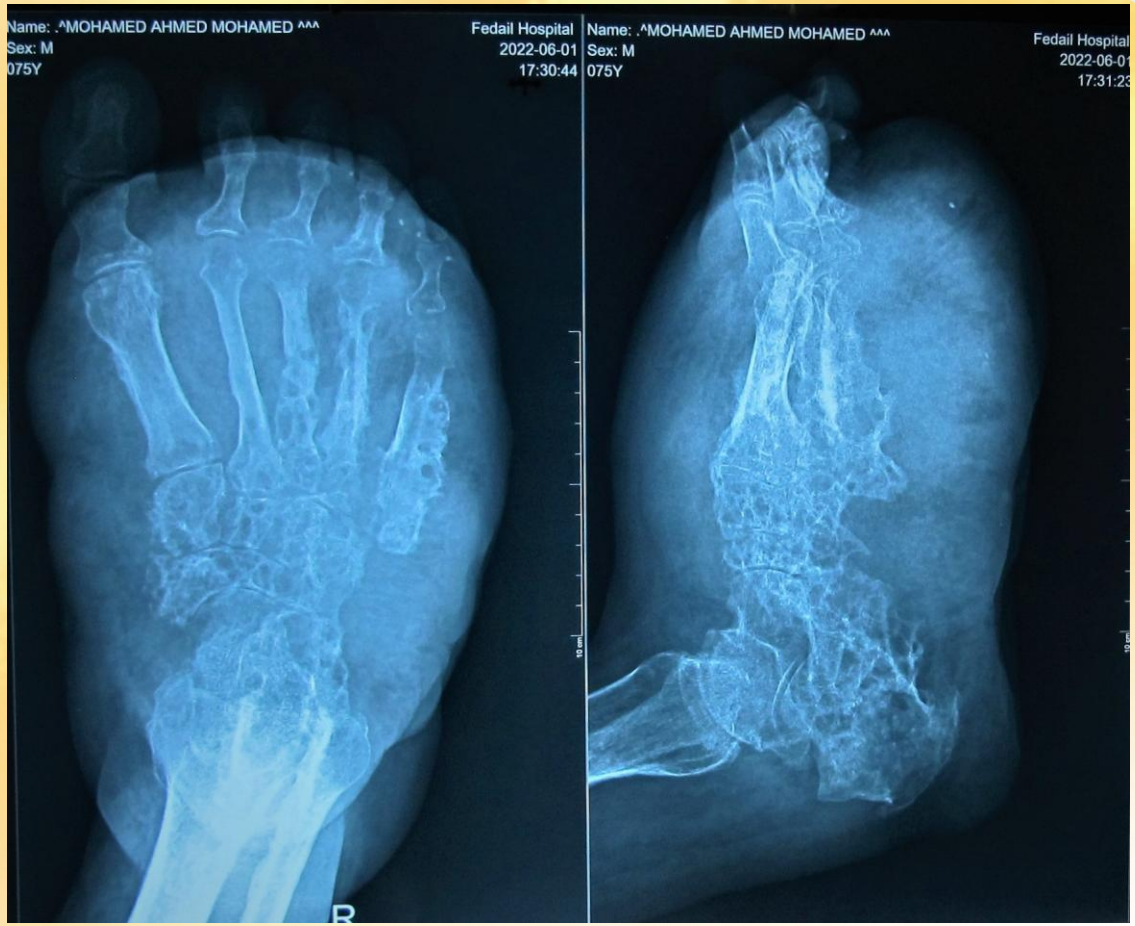
Pre Operative Requirements



Imaging:

- Mandatory pre-operative
- Ultrasound to map the depth of the lesion and proximity to bone/tendons.
- X-ray of the affected part to rule out bone involvement.

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Pre Operative Requirements

General investigations:

- To assess the patient's fitness for surgery and anaesthesia.

Consent:

- Informed consent must be obtained

Medical Optimisation

Eumycetoma:

- Patients should ideally be on Itraconazole (200mg BD) for at least six months prior to surgery to localise/encapsulate the lesion.

Actinomycetoma:

- Surgery is rarely the primary treatment; it is reserved for debulking massive lesions or biopsy.

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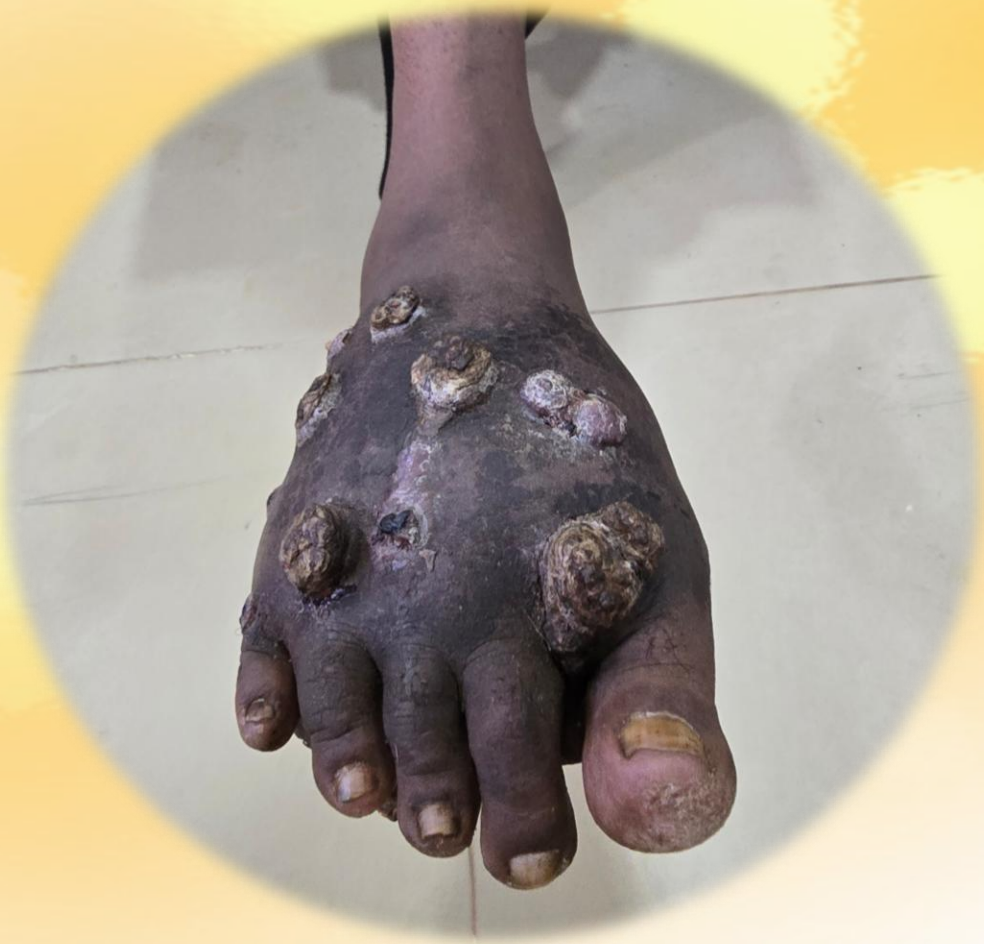
Lesions Grading

- Small lesion
- Intermediate lesion
- Massive lesion



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Clinical Presentation:

- A single, small subcutaneous swelling or nodule, usually less than 5 cm in diameter.

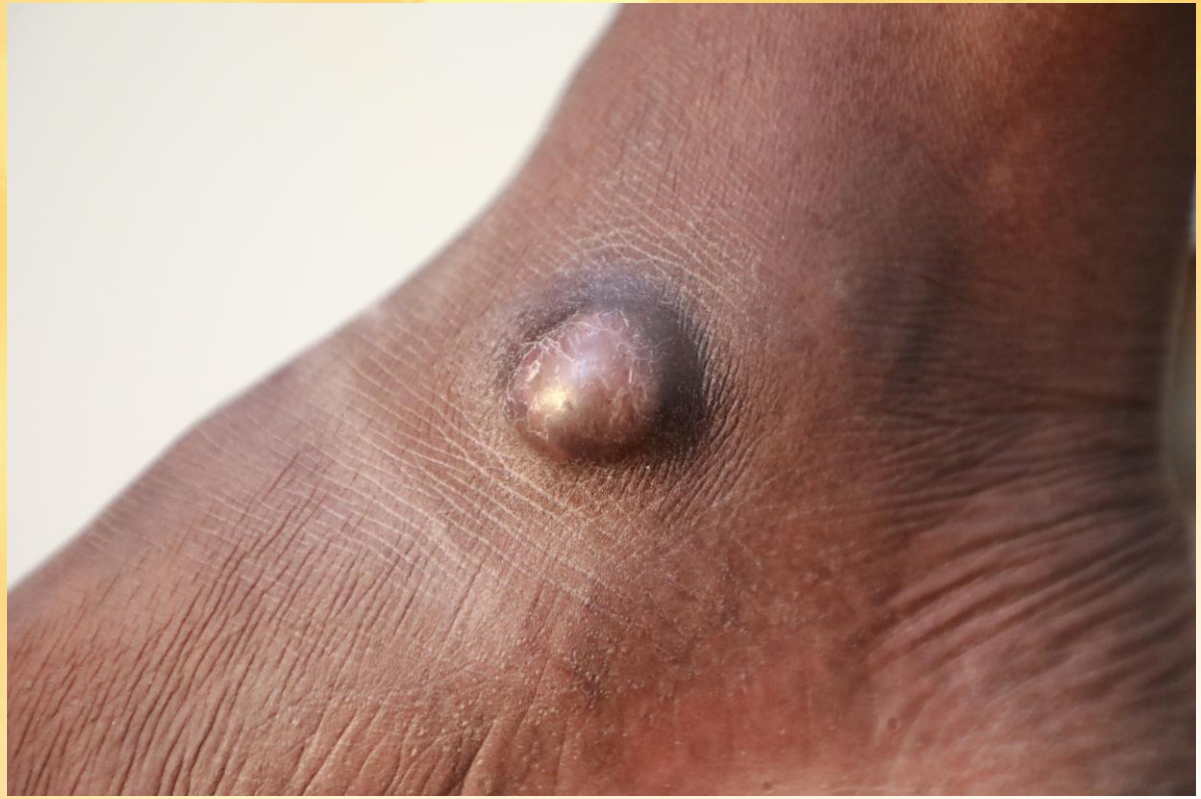
Characteristics:

- It is mobile, not attached to the bone or deep muscle and may has no sinus tracts or grain discharge.

Action:

- This is the ideal candidate for "En Bloc" excision, both at the MRC or in the field by a mobile surgical unit.

- The cure rate is highest at this stage.



Lesions Grading
Small lesion

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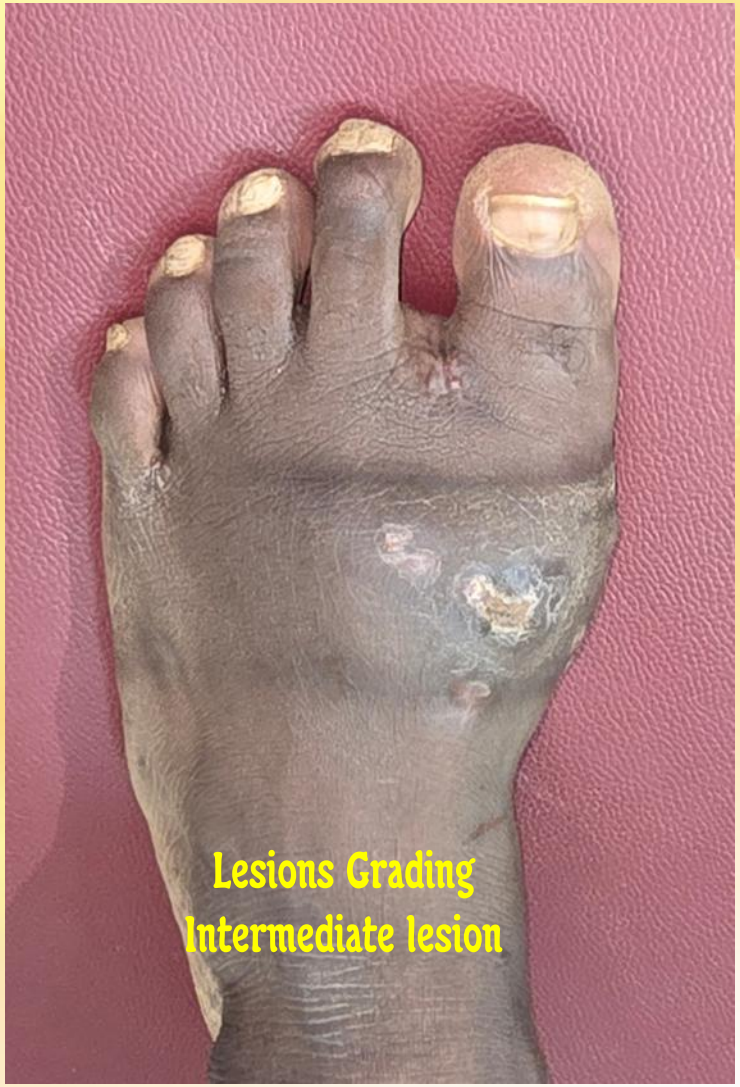
Clinical Presentation:
The swelling is larger (usually 5–10 cm) and may have one or more active sinus tracts discharging grains.

Characteristics:
The lesion remains relatively localised and shows limited involvement of deeper tissues.

Action:
These cases can be done at the MRC or in the field, but they require a more experienced surgeon and careful ultrasound mapping to ensure a wider margin (2 cm) can be achieved without hitting vital structures.



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Clinical Presentation:
Massive swelling (> 10 cm), multiple discharging sinuses, and visible deformity.

Characteristics:
The lesion is often fixed to the underlying tissues (suggesting deep invasion).

Action:
Referral only.

These cases are NOT candidates for primary excision in a mobile unit because they often require bone scraping, skin covers, or complex reconstructive surgery, which can only be performed in a stationary centre.

Advanced/Massive Disease
(Not for Field Surgery)

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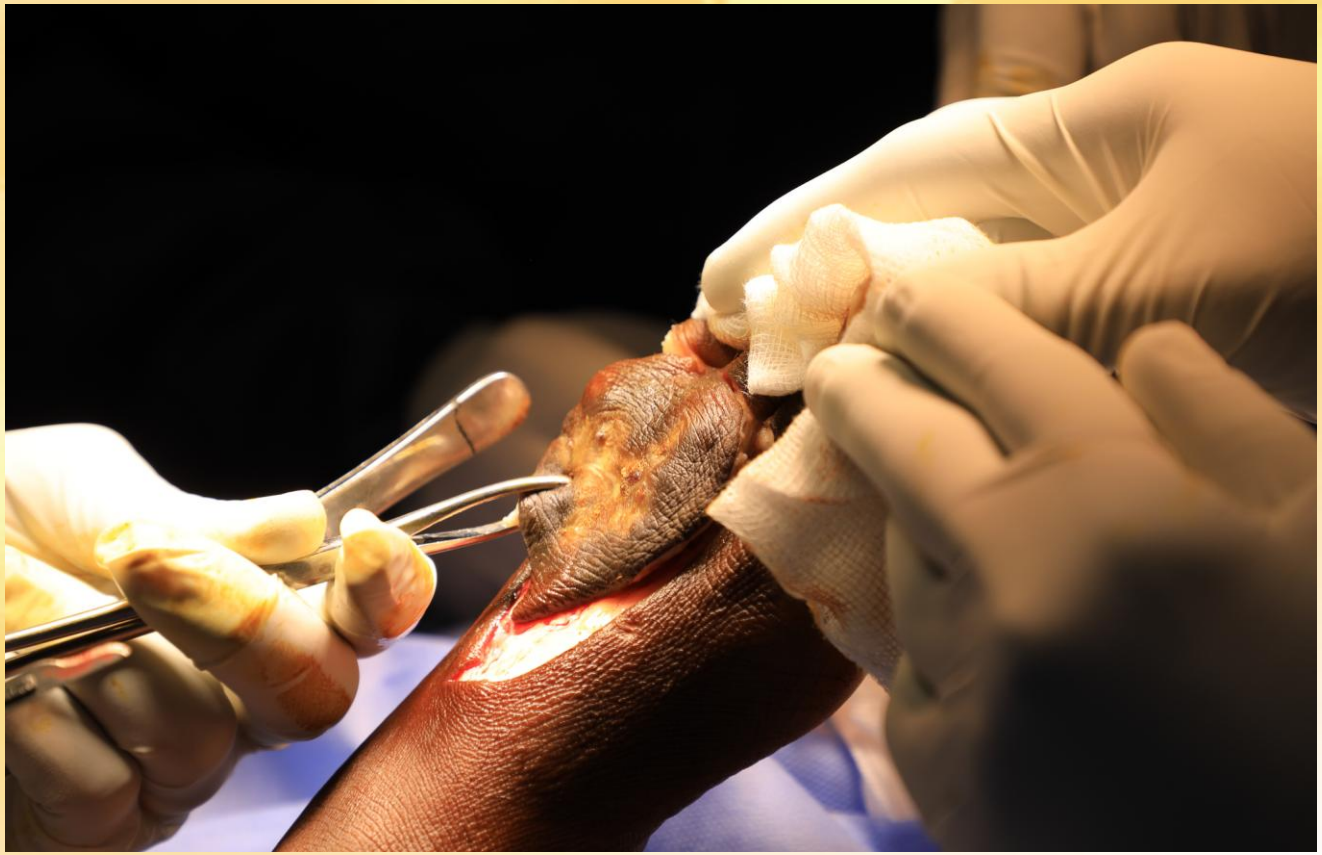
Surgical Technique:
The wide local Excision

- The goal is to remove the mycetoma granuloma and its surrounding fibrous capsule as a single, undisturbed unit.



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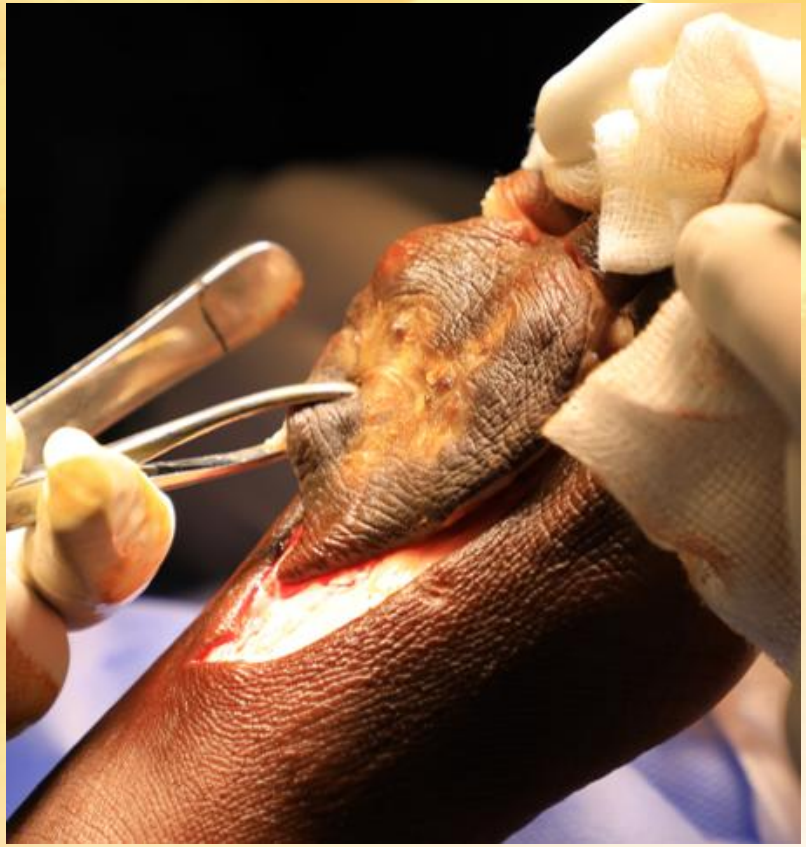
Step 2: Incision

Ellipse Design:

An elliptical incision is made around the lesion, including all active sinus tracts and scarred skin.

Safety Margin:

Maintain a minimum of 2 cm healthy tissue margin around the palpable mass.



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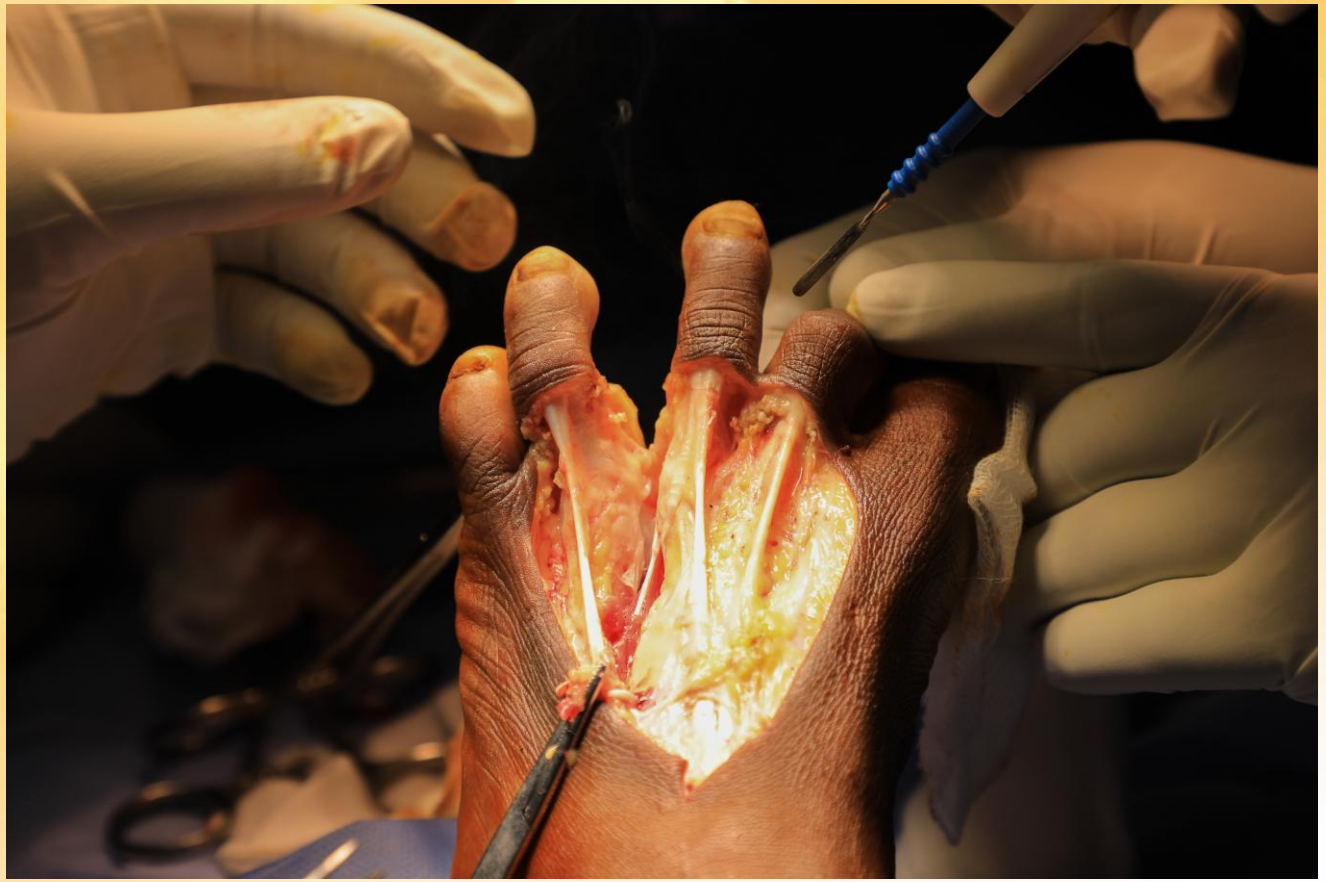
Step 3: Dissection (The Critical Phase)

Avoid Rupture:
Do NOT incise into the lesion. Use blunt and sharp dissection to stay outside the pseudocapsule.

Depth:
Dissect down to the deep tissue. If the lesion is adherent to the fascia, a layer of the fascia must be excised along with the specimen.

Visual Check:
Constantly inspect for "satellite" nodules or grains leaking from the main mass.



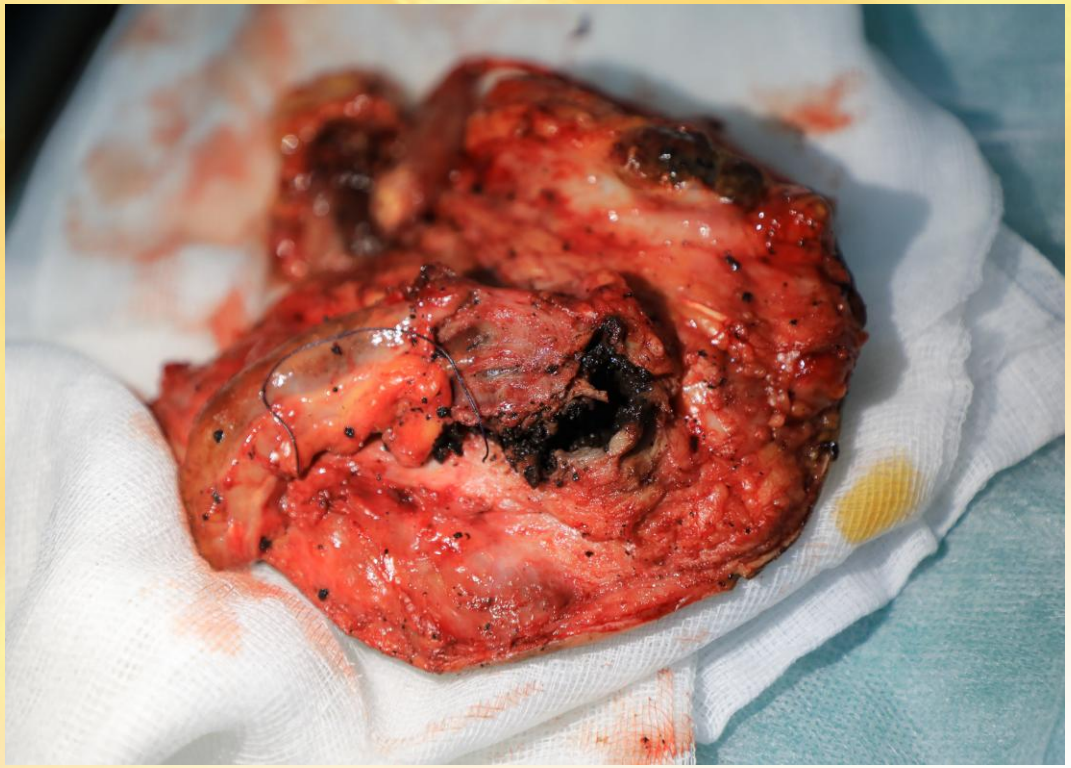
Step 4: Specimen Management

The excised mass must be inspected for integrity.

Biopsy:

- Half the specimen should be placed in 10% Formal-saline in for Histopathology

- The other half and grains in Normal Saline for Culture.



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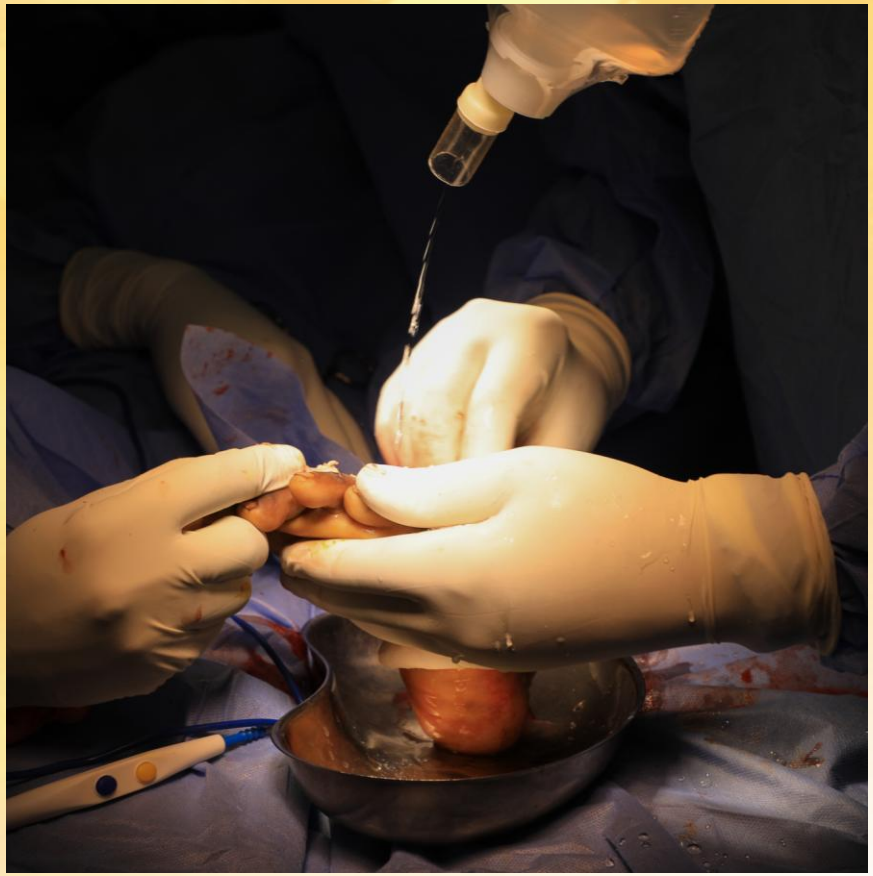
Wound Management

Irrigation:
Copious irrigation of the wound bed with normal saline or a mild antiseptic solution.

Haemostasis:
Release the tourniquet before closure to ensure all bleeding points are controlled.



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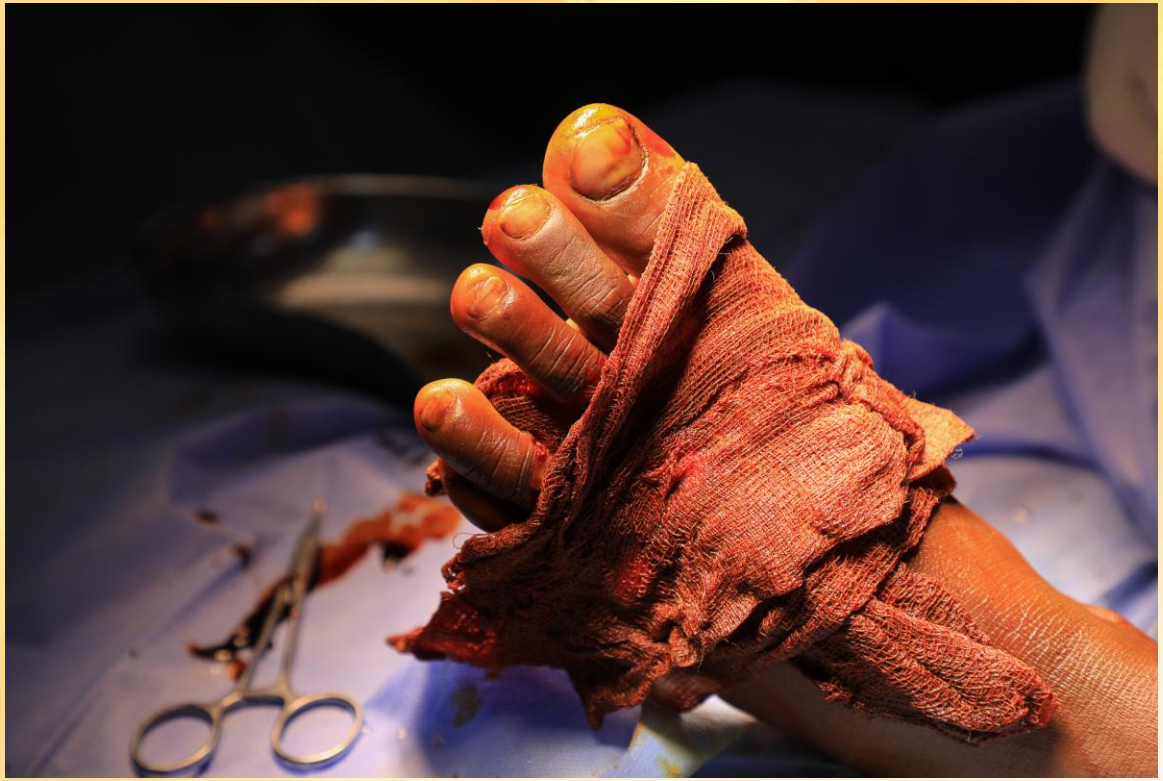

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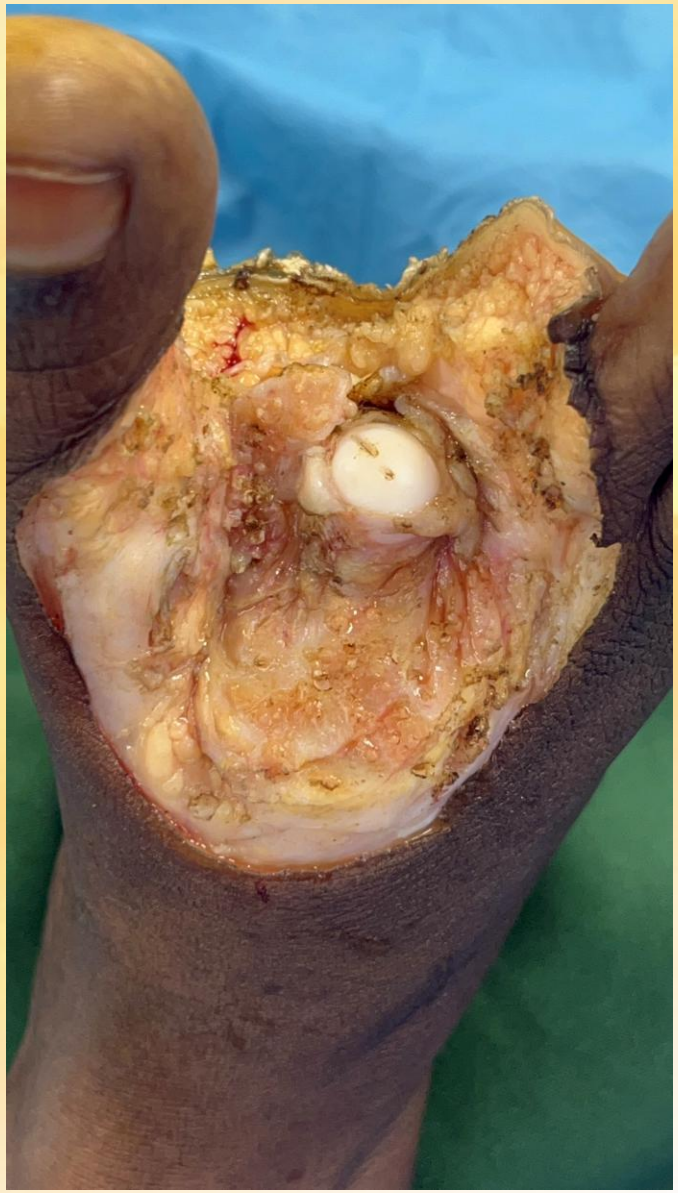
Wound Closure

Primary Closure:

Not recommended for daily wound dressings to remove any missed grains or hyphae.

Skin Cover:

If the defect is large, a split-thickness skin graft or local flap should be performed (typically at the MRC) at a later stage, once the wound is well healed and there is no evidence of recurrence.



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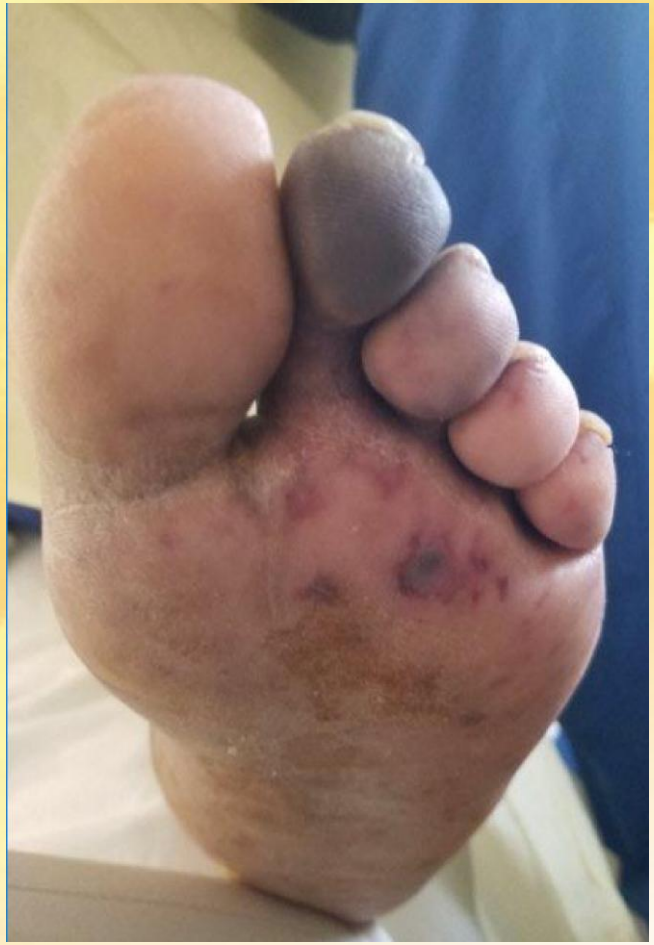
Post-Operative Protocol

A. Immediate Care

- Elevation of the limb to reduce bleeding.
- Inspect the toes for ischaemia
- Prophylactic antibiotics for 3–5 days to prevent secondary bacterial infection.
- Release wound dressing after 2-3 hours postoperatively



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Post-Operative Protocol

B. Continuity of Medical Therapy (Crucial)

Eumycetoma:

- Resume Itraconazole immediately once oral intake is tolerated. Therapy must continue for at least 6 months post-surgery.

Actinomycetoma:

- Continue the medical treatment

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Post-Operative Protocol

C. Follow-up Schedule

24 hours postoperatively:

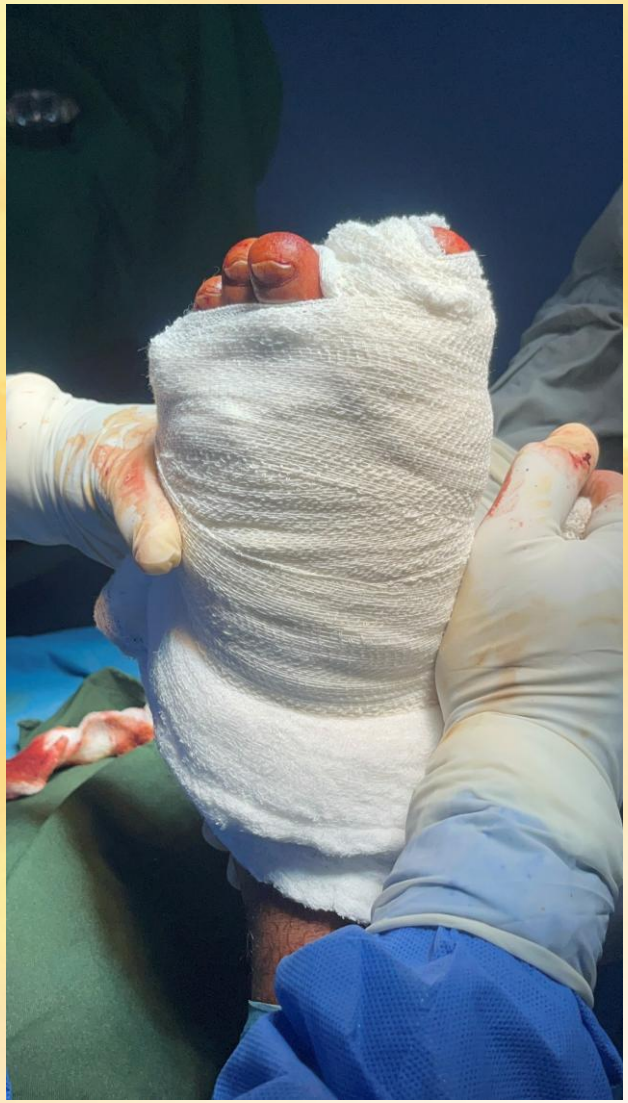
- Wound assessment, ischaemia and dressing

Week 2:

- For wound assessment and evidence of recurrence.

Months 3, 6, and 12:

- Clinical and Ultrasound examination to check for early recurrence.



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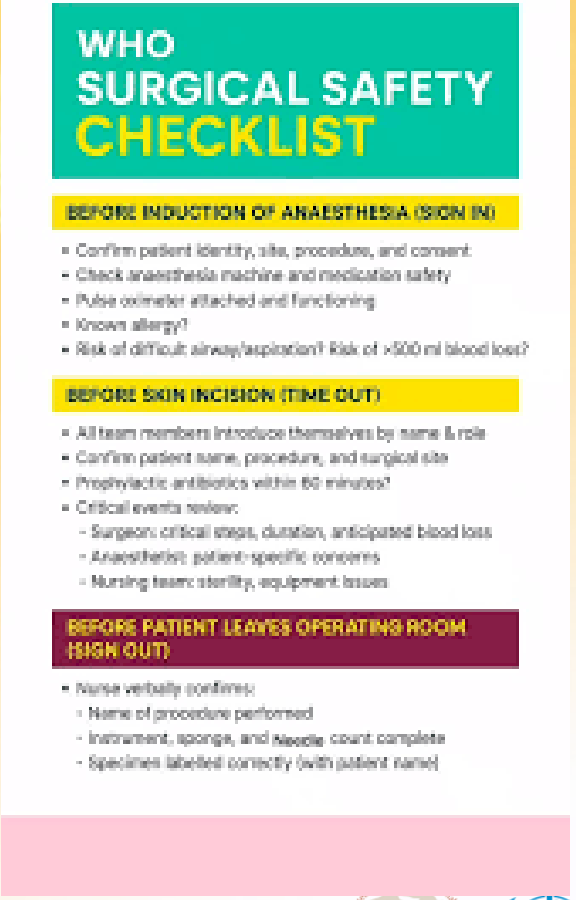
Safety Warnings & Quality Control

Contamination Risk:
If the lesion is accidentally ruptured during surgery, the wound must be irrigated with at least 2 litres of saline to flush out grains.

Document the rupture in the surgical notes.

Equipment Sterility:
Standard WHO Surgical Safety Checklists must be followed for every procedure.



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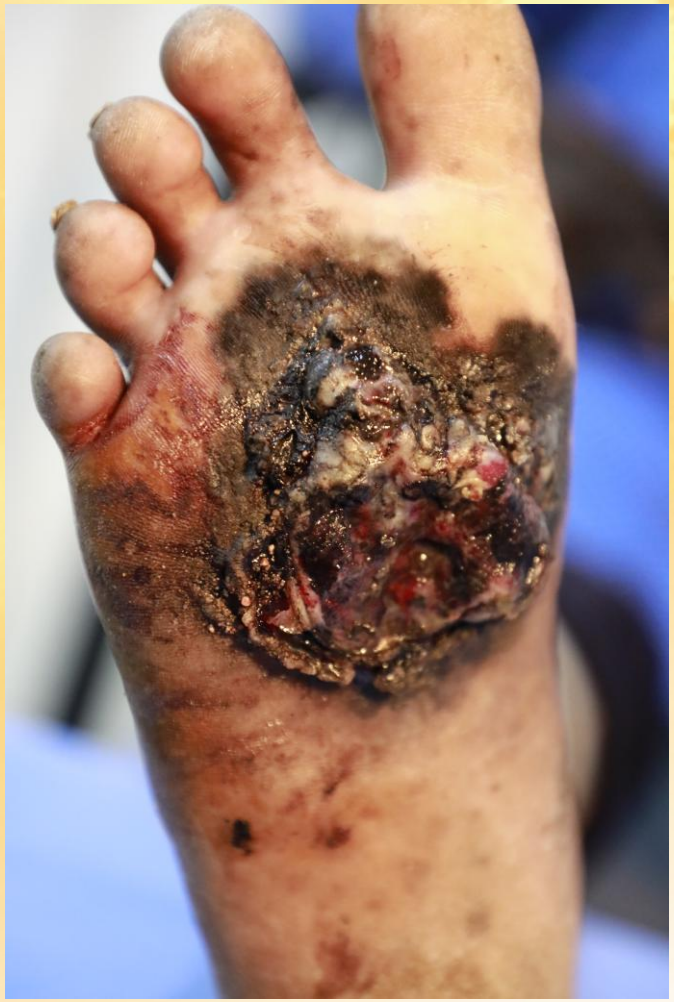
For a Massive Lesion

- Repetitive surgical debridements and wound irrigation with normal saline and antiseptic solutions were done.



Indications for Amputation

Massive lesions with:

- Gross secondary bacterial infection
- Badly damaged tissues
- Bone affection
- Poor general condition
- It can be a life-saving procedure

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References

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Prepared by:	Approved By:
Bothina	*Fahal*
Miss Bothina Mamoun Consultant Surgeon Mycetoma Research Center University of Khartoum	Professor Ahmed Hassan Fahal Director Mycetoma Research Center University of Khartoum