

Deep Dermatophytosis

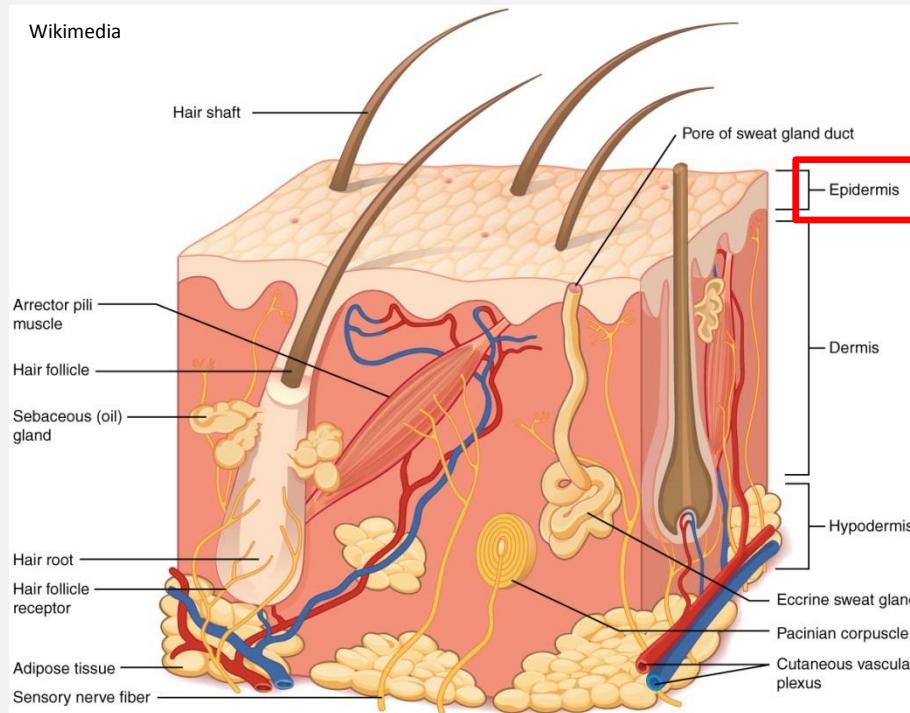
2016-11-06 MMTN/Bangkok

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Superficial dermatophytosis



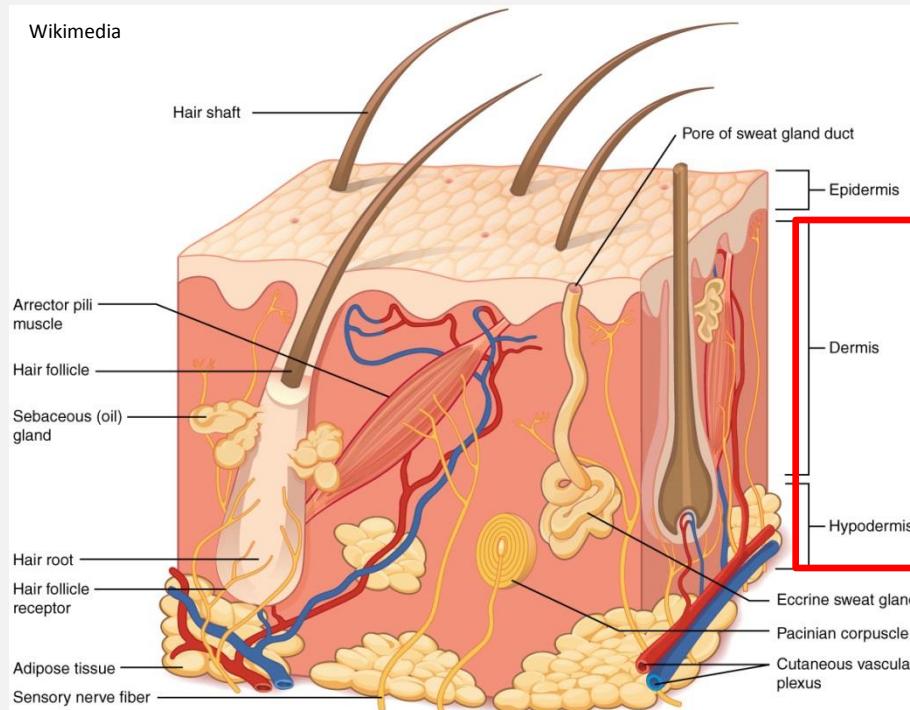
Stratum corneum

Tinea faciei
Tinea corporis
Tinea manuum
Tinea cruris
Tinea pedis

Skin appendages

Tinea capitis
Tinea barbae
Tinea unguium

Deep dermatophytosis



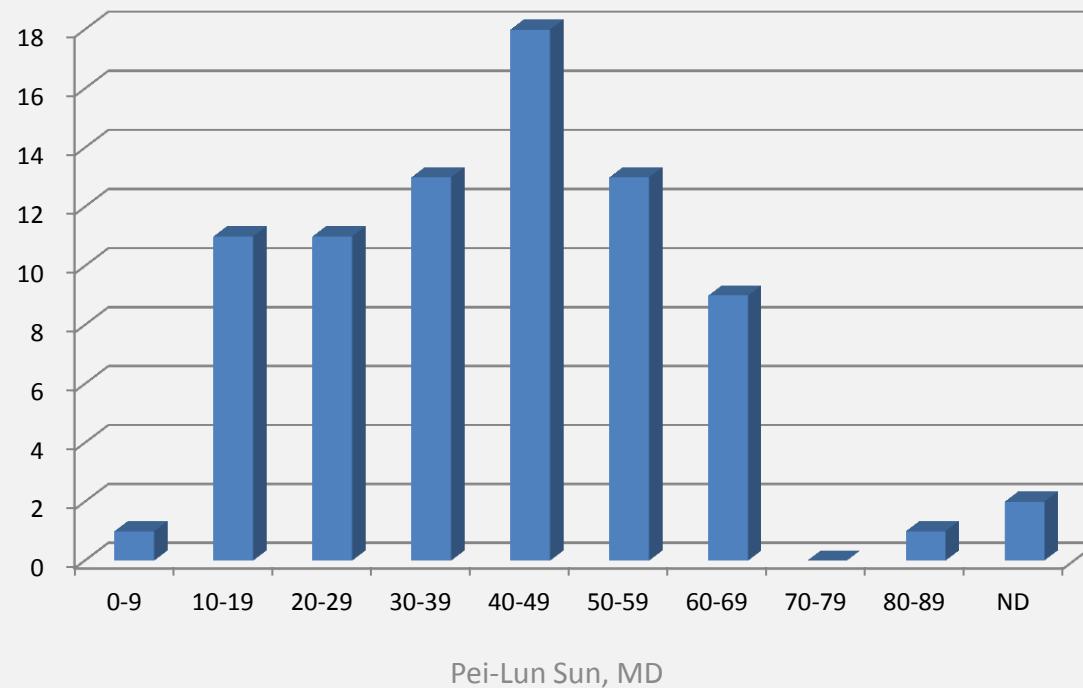
Specific disease entity
Majocchi's granuloma /
Trichophytic granuloma
Dermatophytic pseudomycetoma

Non-specific disease entity
Deep dermatophytosis/ tinea profunda
Invasive dermatophytosis
Disseminated dermatophytosis
Dermatophyte abscess

+ lymphadenopathy and/or angioinvasion
+ internal organ involvement

Deep dermatophytosis (1975-2016)

- 79 cases
- M:F = 56:23
- Age of disease onset: 8-83 y/o (39.8 ± 16.6)

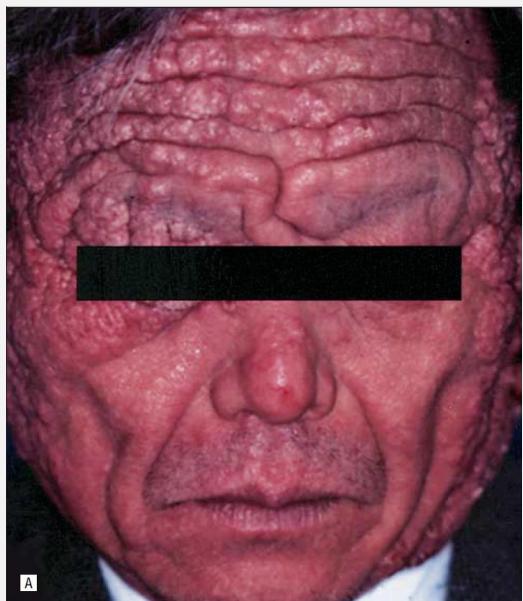


Clinical presentations

Solid nodule(s)



Plaques/papuloplaques



Arch Dermatol. 2004 May;140(5):624-5
Mycopathologia. 2013 Dec;176(5-6):457-62

Mycoses. 2007 Mar;50(2):102-8
Am J Dermatopathol. 2011 Jun;33(4):397-9

J Clin Immunol. 2016 Apr;36(3):204-9

Ulcerative

C

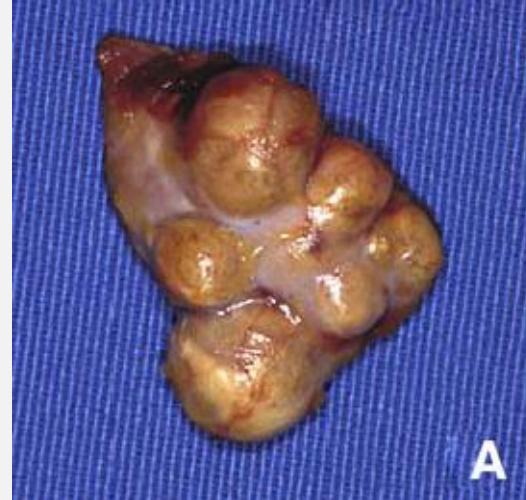
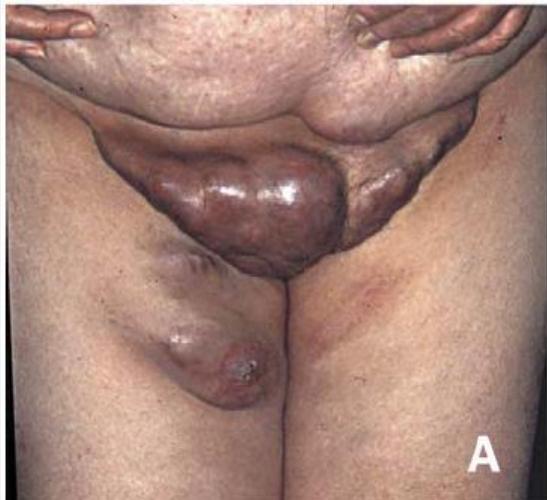


N Engl J Med. 2013 Oct 31;369(18):1704-14
J Clin Immunol. 2015 Jul;35(5):486-90

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Clinical presentations

Cystic masses/nodules



J Am Acad Dermatol. 2006 Feb;54(2 Suppl):S11-3

Acta Derm Venereol. 2013 May;93(3):358-9

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BMC Infect Dis. 2016 Jun 17;16:298

Clinical presentations

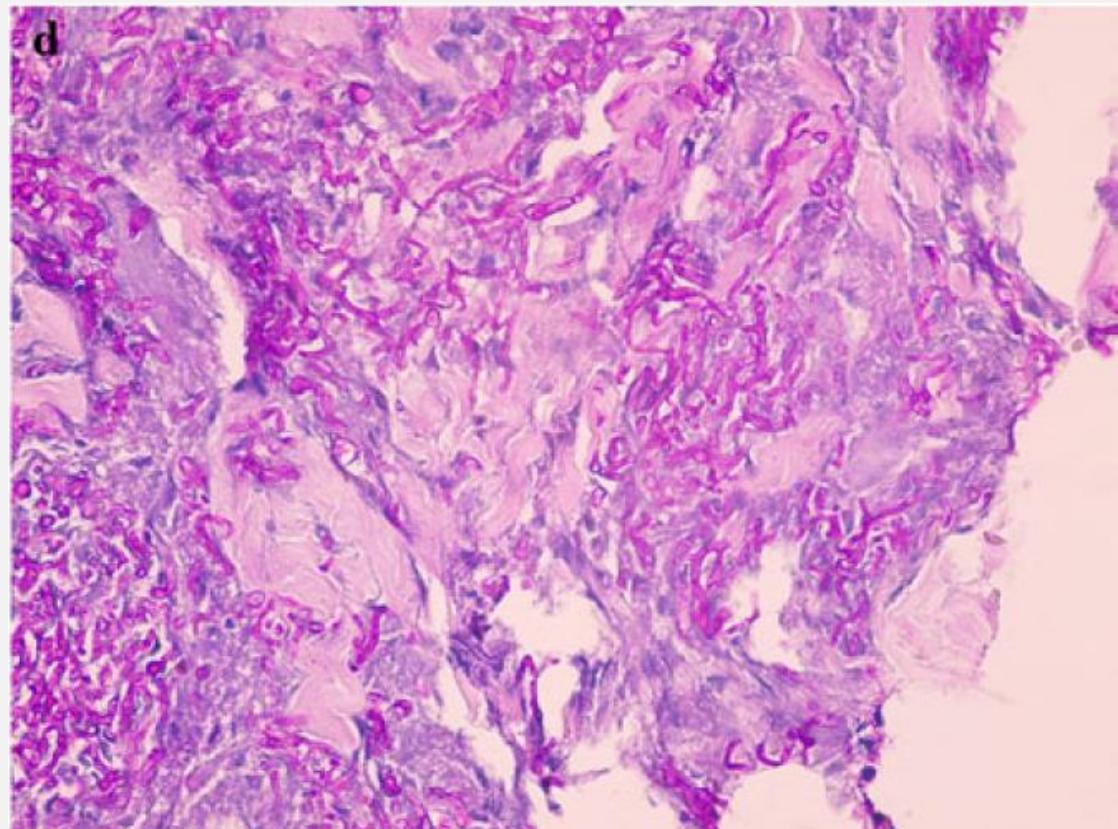
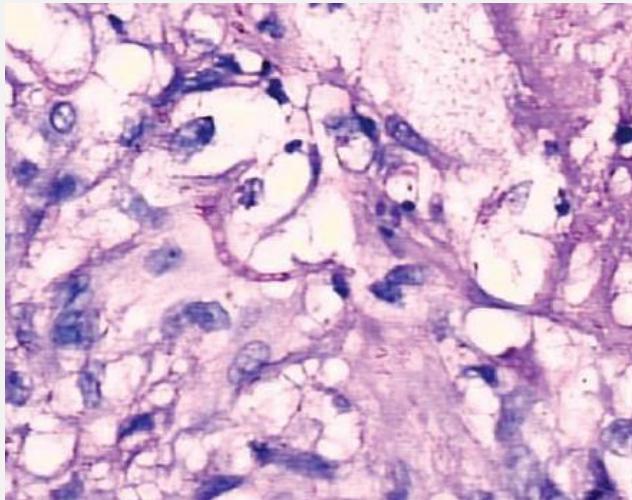
Lymphadenopathy



Ann Dermatol Venereol. 2010 Mar;137(3):208-11

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Histopathology

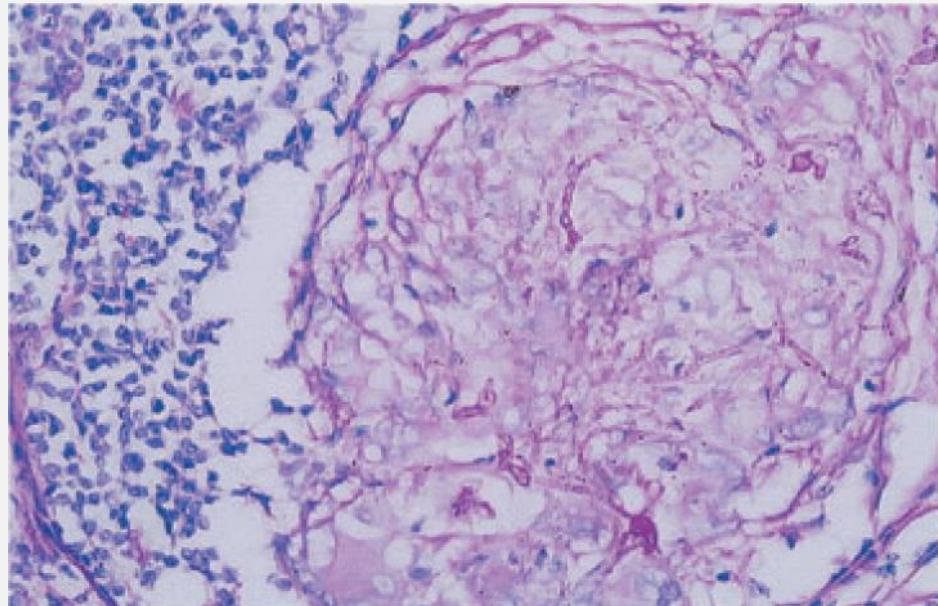


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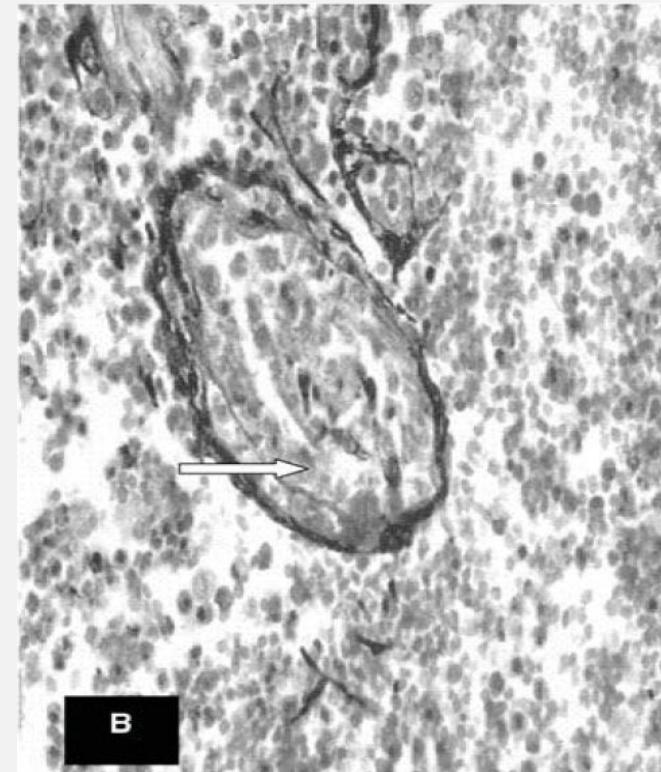
J Clin Microbiol. 2003 Nov;41(11):5298-301
Mycopathologia. 2013 Dec;176(5-6):457-62

Histopathology

Lymph node involvement

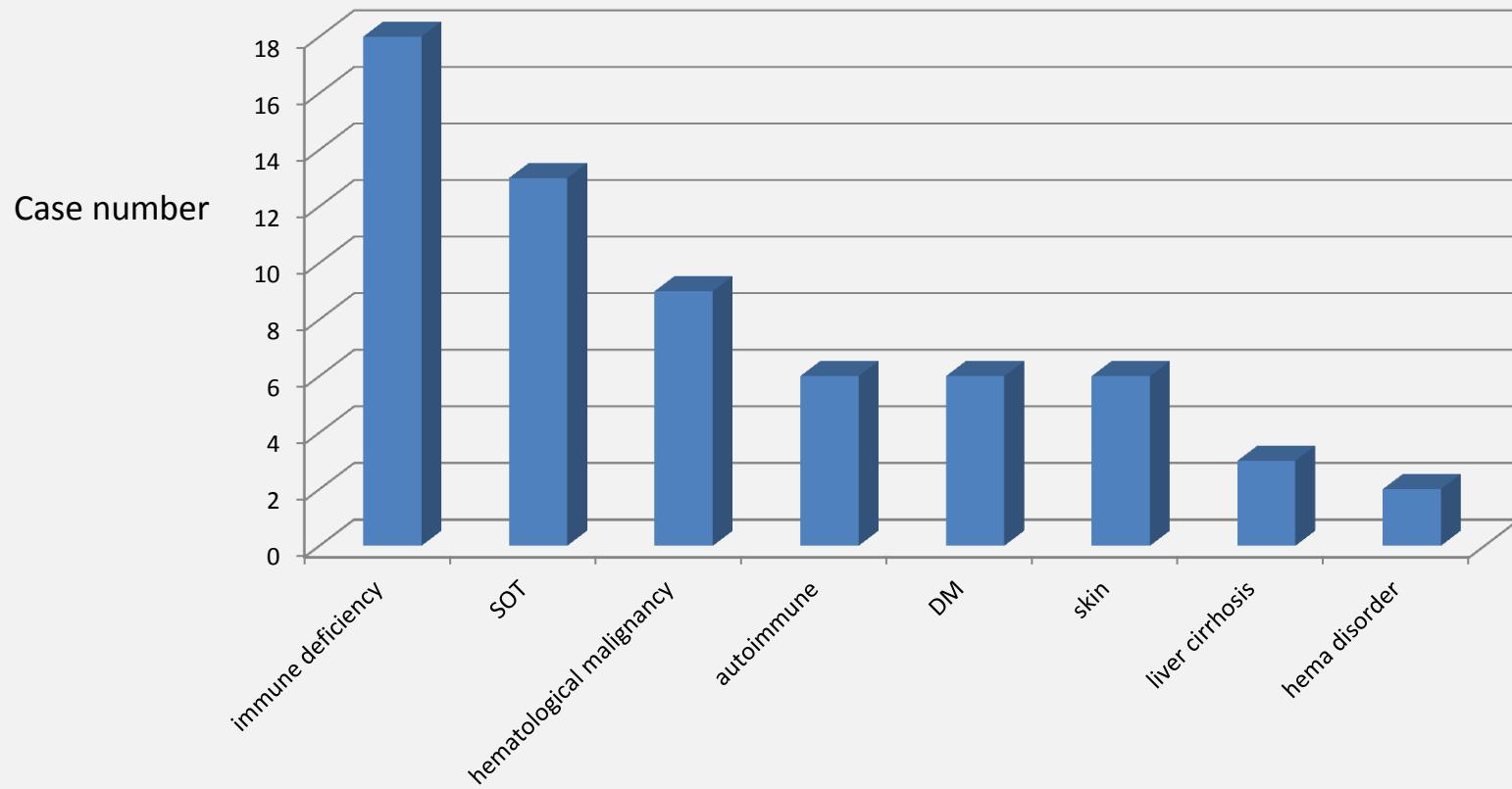


Angioinvasion

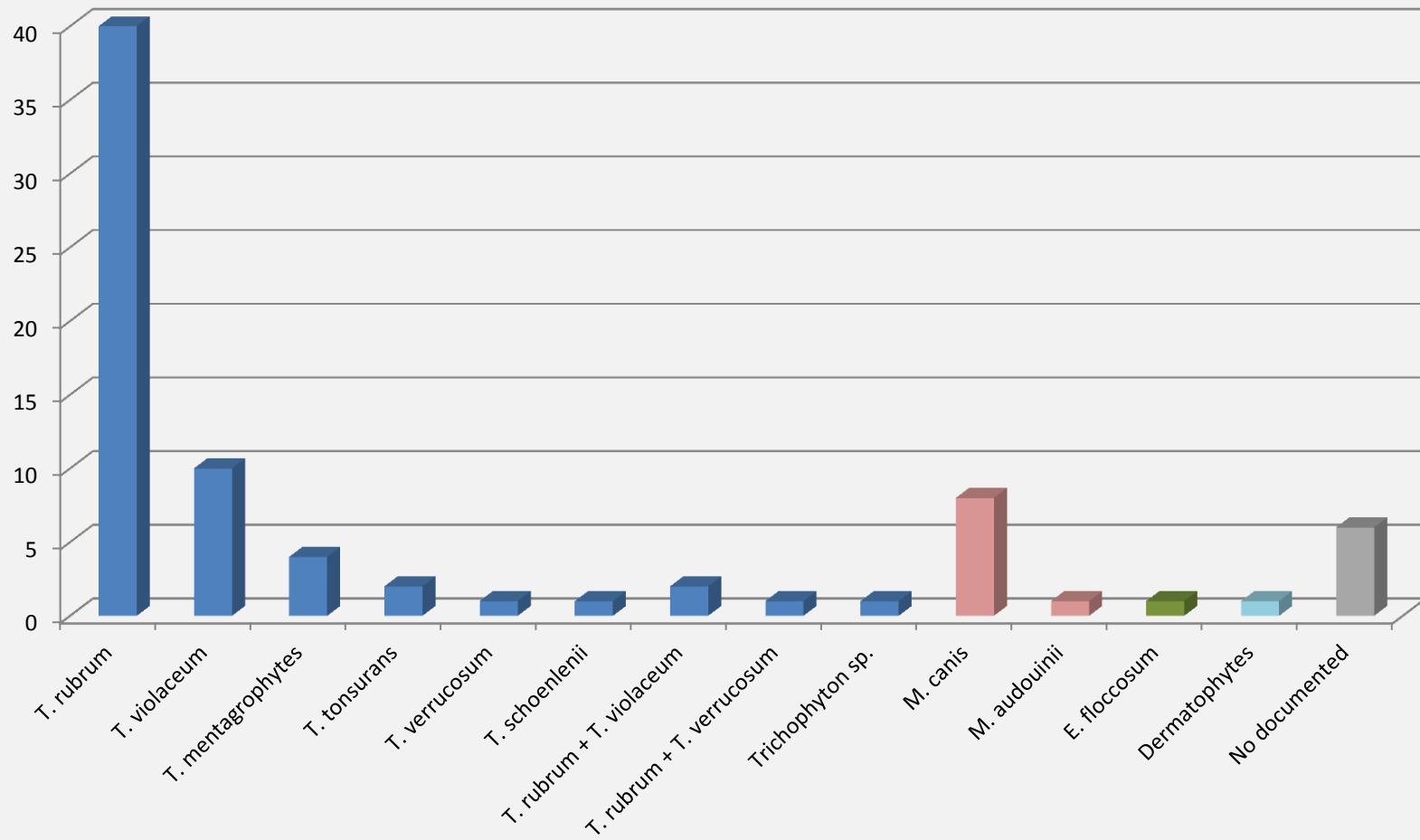


Risk factors

- Chronic tinea
- DM, hepatitis/liver cirrhosis, lymphoma/leukemia, HIV, hereditary hemochromatosis, ESRD, atopic dermatitis
- Immunosuppressive Tx due to underlying disease: solid organ transplantation, myasthenia gravis, RA
- Immunodeficiency: plasma factor deficiency, decreased T cell activity, CARD9 mutation

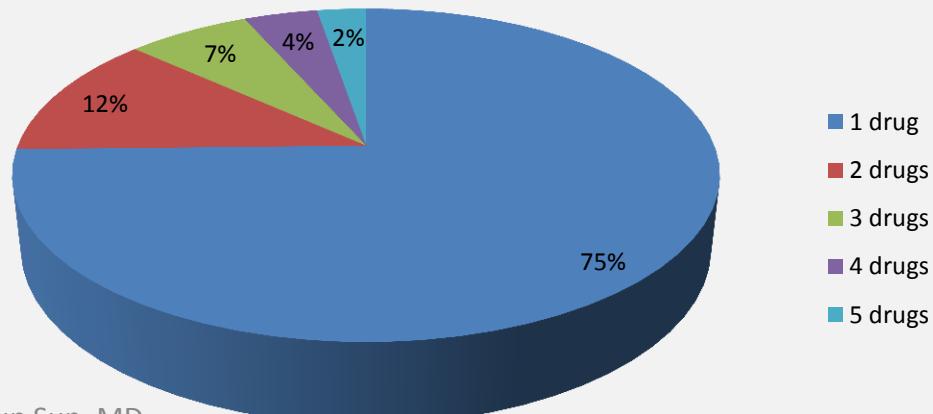


Pathogens



Treatment

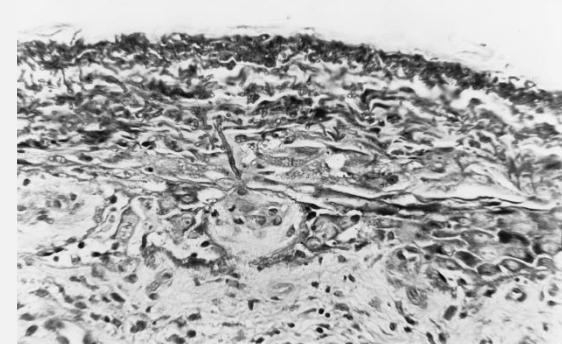
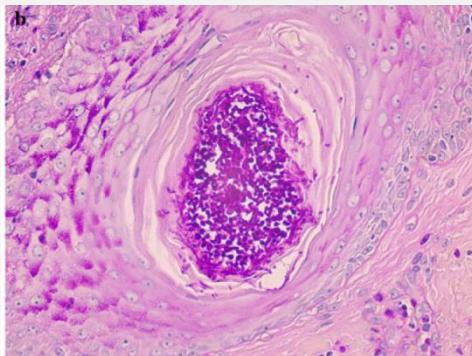
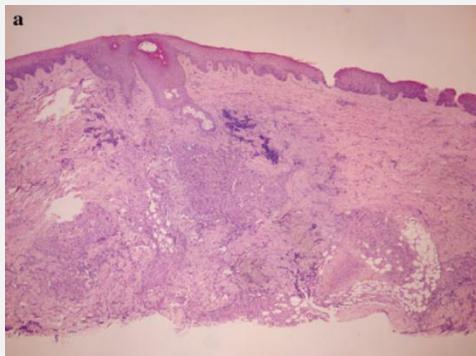
- No treatment guideline is available now.
- Systemic antifungal agent is always necessary.
- Most commonly used drugs are fluconazole, itraconazole and griseofulvin, followed by terbinafine and amphotericin B. Ketoconazole, voriconazole, posaconazole have been used in a few cases.
- Surgical excision: 10 cases (12.7%)



- **Prognosis**
 - Deep dermatophytosis confined to skin, without other organ involvement: all survived or died due to other cause not related to dermatophytes (N=47)
 - Invasive deep dermatophytosis with internal organ/LN involvement (N=32)
 - Resolved: 7
 - Improved/partially resolved : 8
 - Stabilized: 3
 - Recurred: 2
 - Died: 9 (due to invasive dermatophytosis)
 - Lost to follow up / not documented: 3

Pathogenesis

- Most cases of deep dermatophytosis had superficial dermatophytosis on body, which served as an source of infection, e.g. tinea corporis, tinea pedis, onychomycosis
- Route of entry: follicular (ruptured of infected hair follicles) or non-follicular (trauma or direct invasion(?)
- Defects in host immunity: congenital or iatrogenic



Mycopathologia. 2013 Dec;176(5-6):457-62
J Clin Microbiol. 1996 Feb;34(2):460-2

Challenges on research of deep dermatophytosis

- Low incidence: no randomized case control trial can be done
- Diagnosis: histopathology and culture are essential
- Disease terminology: not yet been clearly defined (prognosis)
 - Invasive, disseminated, generalized, systemic
 - Deep dermatophytosis / Majocchi's granuloma / Pseudomycetoma
- Complex pathogenesis: host immune background and pathogen characteristics



An Bras Dermatol. 2014;89(5):839-40.

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Conclusion

- Deep dermatophytosis is a rare and invasive form of dermatophyte infection, which may lead to mortality.
- An accurate diagnosis relies on skin biopsy for histopathology and fungal culture.
- The host immune status play a major role in the disease pathogenesis, extend, and prognosis.
- Systemic antifungal treatment is always necessary.
- Superficial tinea should be properly managed before starting immunosuppressive treatment.

Thank you

