EMIRATES DERMATOLOGY SOCIETY
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ANNUAL CONFERENCE

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United Arab Emirates

EMIRATES DERMATOLOGY SOCIETY

The many faces of Cutaneous Tuberculosis

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27TH WORLD CONGRESS OF DERMATOLOGY 2031
DUBAI - CANDIDATE CITY

Conflict of Interest

- No conflicts of interest for this lecture

EMIRATES DERMATOLOGY SOCIETY 2024 ANNUAL CONFERENCE

27TH WORLD CONGRESS OF DERMATOLOGY 2031 DUBAI - CANDIDATE CITY

In this session:

- Classification of cutaneous TB
- Diagnosis of cutaneous TB
- Clinical manifestations of cutaneous TB
- Clinical manifestations of the tuberculids

Classification of cutaneous TB

True cutaneous TB

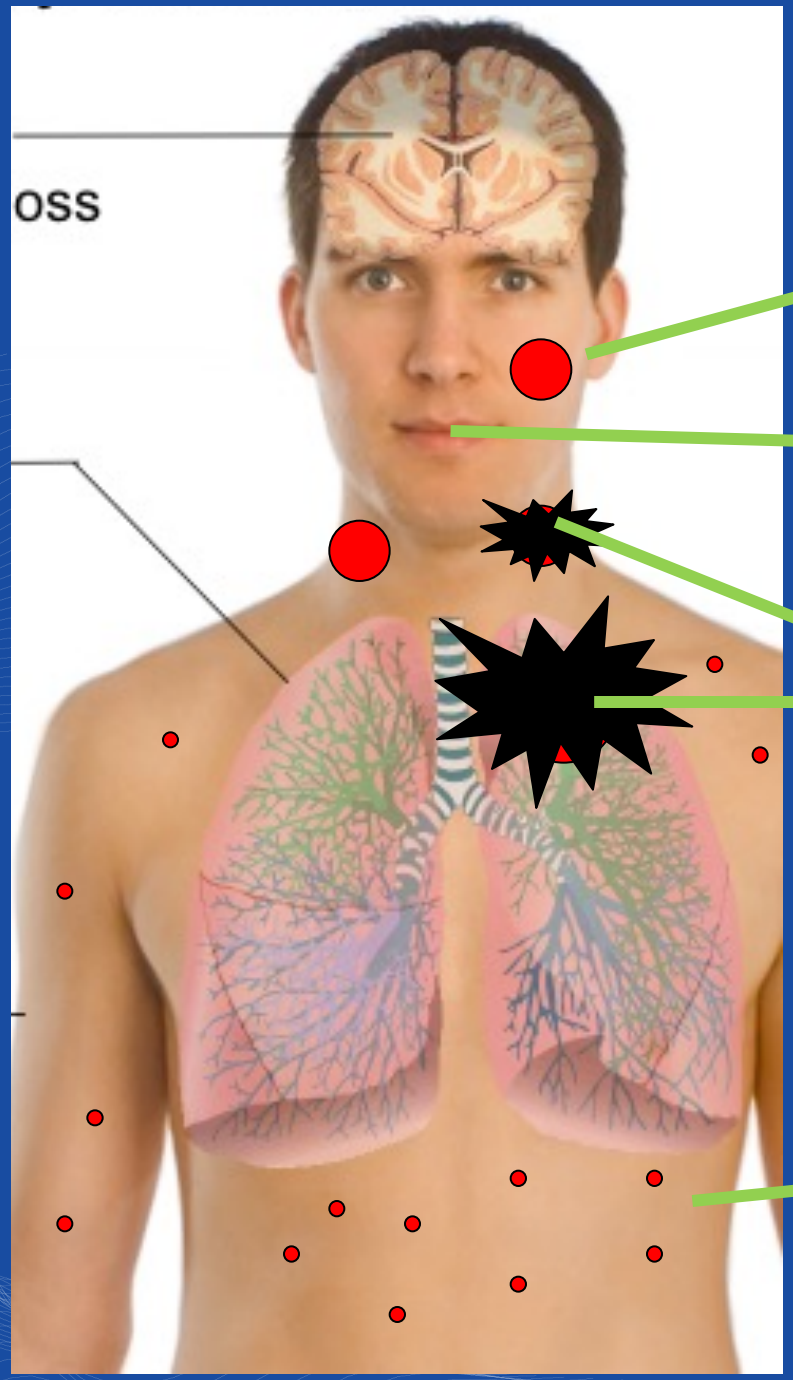
Tuberculids

BEYT ET AL.

TABLE 1. Suggested classification of cutaneous mycobacteriosis and synonymous terms previously used in the medical literature

Proposed classification of cutaneous mycobacteriosis	Terms previously used in literature
I. Inoculation cutaneous mycobacteriosis from an exogenous source	Primary inoculation Tuberculous chancre Tuberculosis primary complex Tuberculosis verrucosa cutis Warty tuberculosis Verruca necrogenica Prosector's wart Tuberculosis cutis verrucosa
II. Cutaneous mycobacteriosis from an endogenous source	
A. Contiguous spread	Scrofuloderma Tuberculosis colliguativa cutis
B. Autoinoculation	Orificial tuberculosis Tuberculosis cutis orificialis Tuberculosis ulcerosa cutis et mucosae
III. Cutaneous mycobacteriosis from hematogenous spread	
A. Lupus vulgaris	Lupus vulgaris Tuberculosis luposa cutis
B. Acute hematogenous dissemination	Acute miliary tuberculosis of the skin Tuberculosis cutis miliaris disseminata Tuberculosis cutis acuta generalisata
C. Nodules or abscesses	Tuberculous gumma Metastatic tuberculous abscess

Medicine (Baltimore) 1981;60(2):95-109



Lupus vulgaris

Peri-orifical TB

Scrofuloderma

Miliary tuberculosis

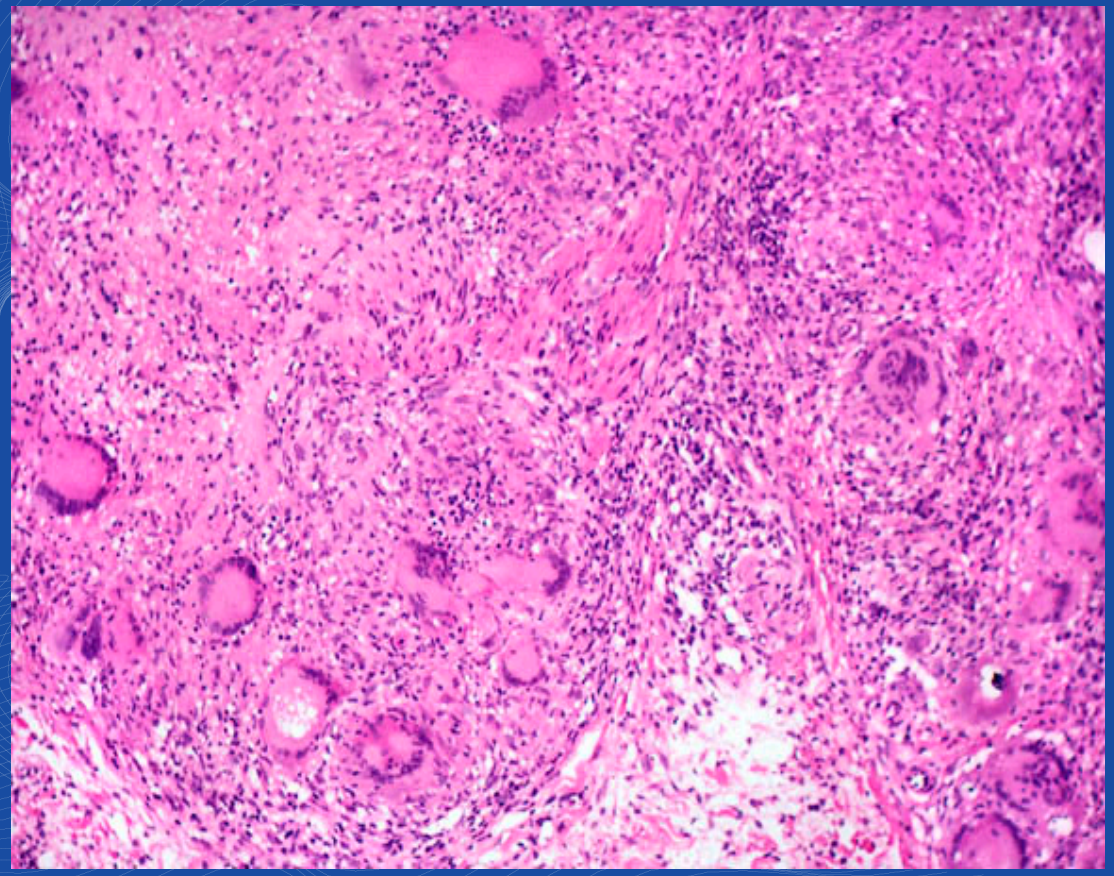
Diagnosis of cutaneous TB

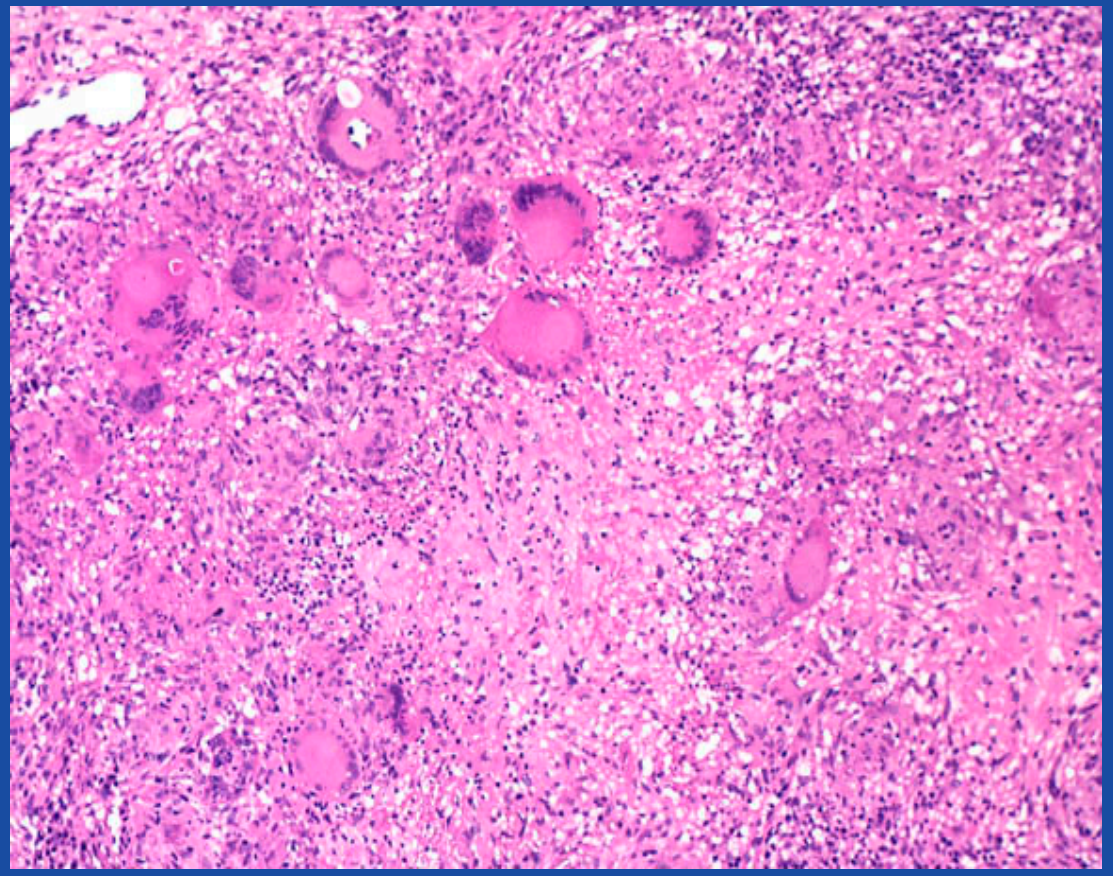
Clinical picture

Variable combinations and transitions of papular, nodular, pustular, papulonecrotic, pustulonecrotic, ulcerative, vegetating skin lesions.

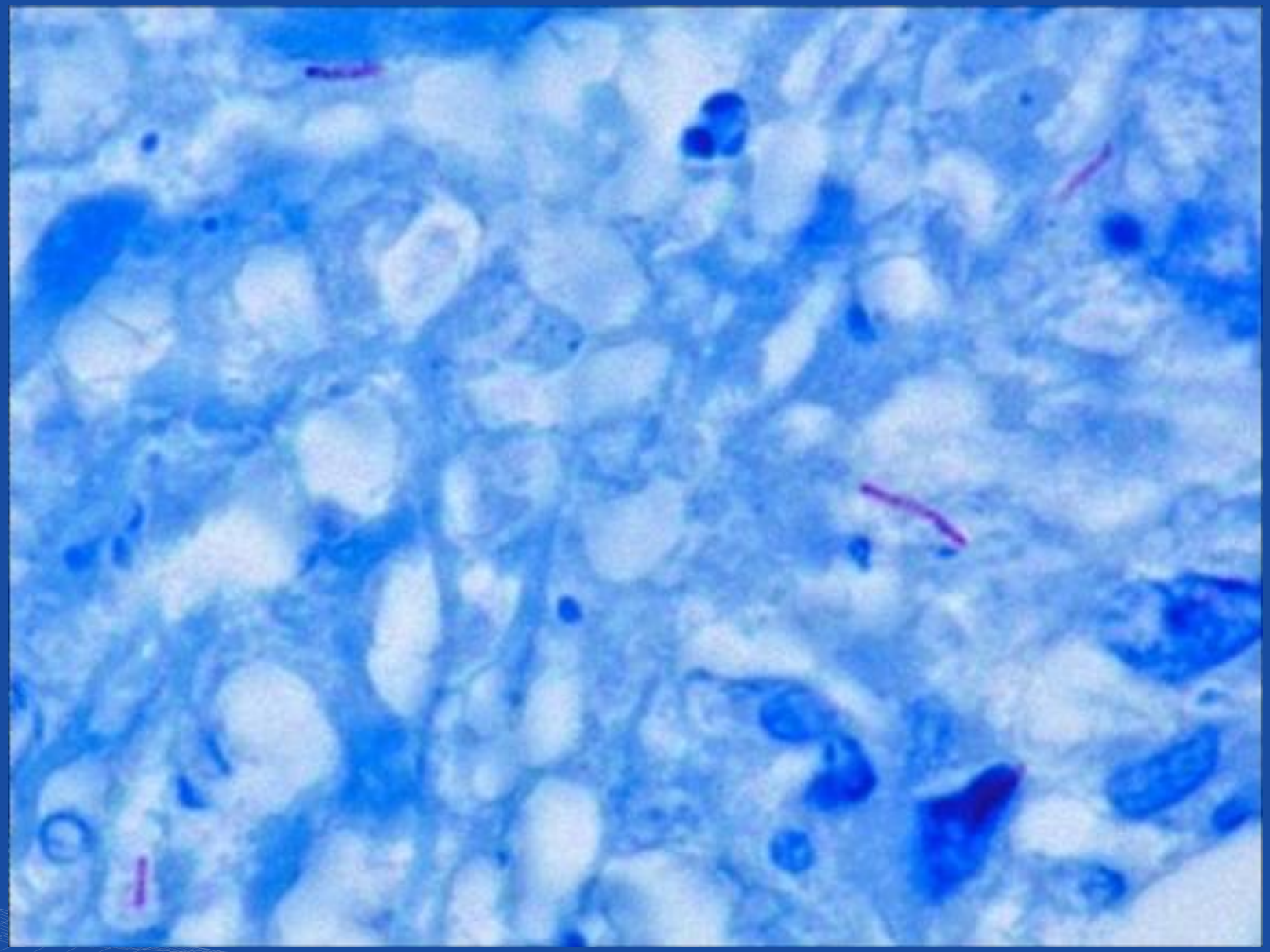
Histology

Variable combinations and transitions of **granulomatous inflammation**, mixed acute and chronic inflammatory cells, **necrosis, vasculitis**, organisation and fibrosis, other non-specific changes



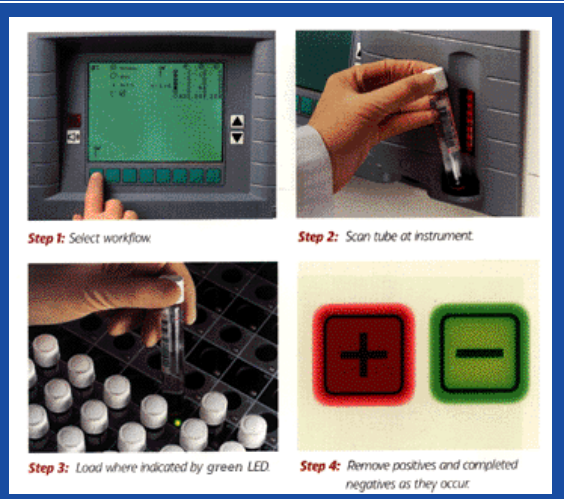


ZN -stain



Löwenstein-Jensen

3-8 w



MGIT

Mycobacteria Growth Indicator Tube

1-3 w

Bactec

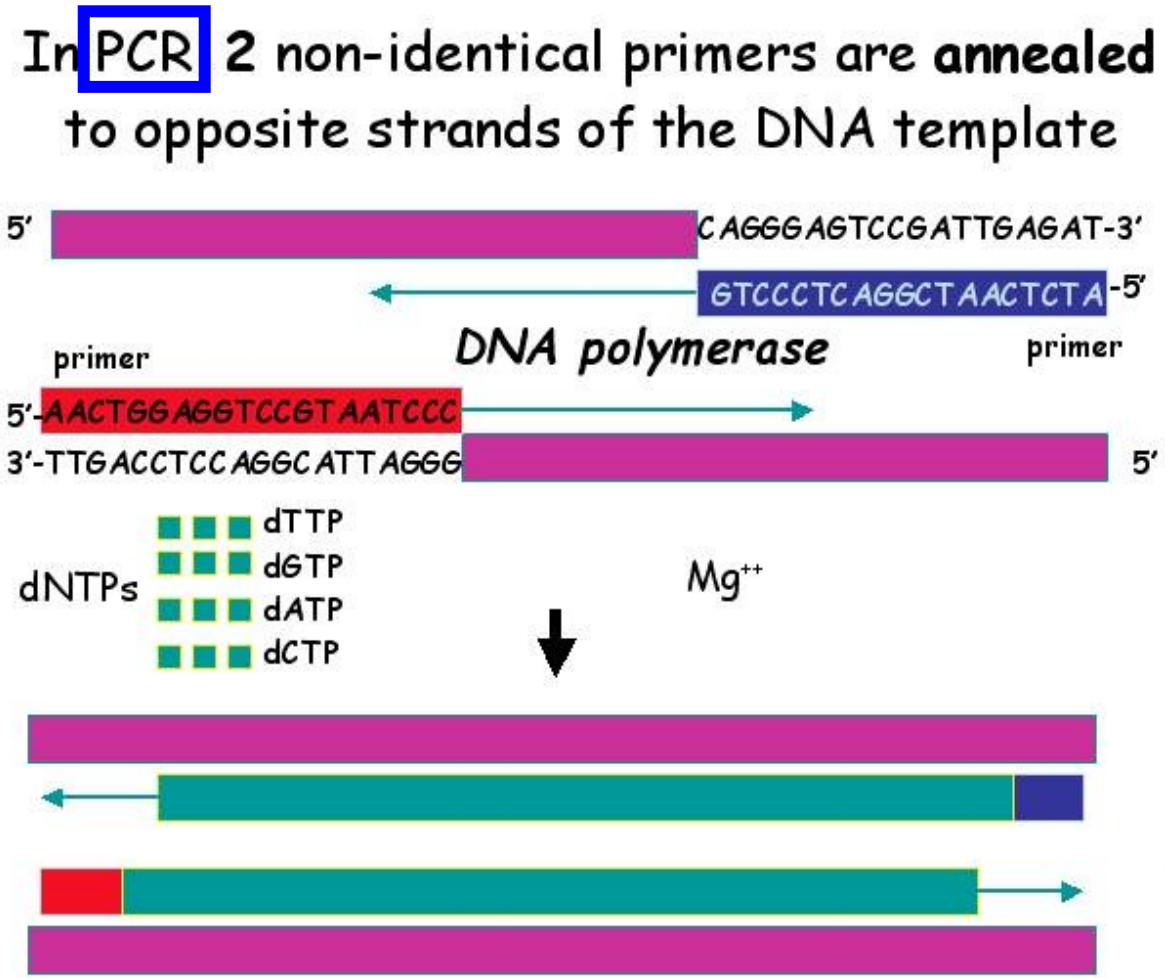
2 w

MODS

Microscopic Observation Drug Susceptibility

1 w

PCR


In PCR 2 non-identical primers are annealed to opposite strands of the DNA template
5′
CAGGGAGTCCGATTGAGAT-3′
GTCCCTCAGGCTAACTCTA-5′
primer
DNA polymerase
primer
5′-AACTGGAGGTCCGTAATCCC
3′-TTGACCTCCAGGCATTAGGG
5′
dNTPs
dTTP
dGTP
dATP
dCTP
Mg++


PCR Test Kit
Promotor
TB Mycobacterium Tuberculosis PCR Test Kit
RPF P131-1301
TB Nucleic Acid Lysis 1x1.8 mL
TB Internal Control 1x150 µL
TB Reaction Mix 1x1.2 mL
TB Enzyme Mix 1x14 µL
TB CONTROL + 1x100 µL
TB CONTROL - 1x100 µL
Insert 1 pcs
LCA7529-02
32

Mantoux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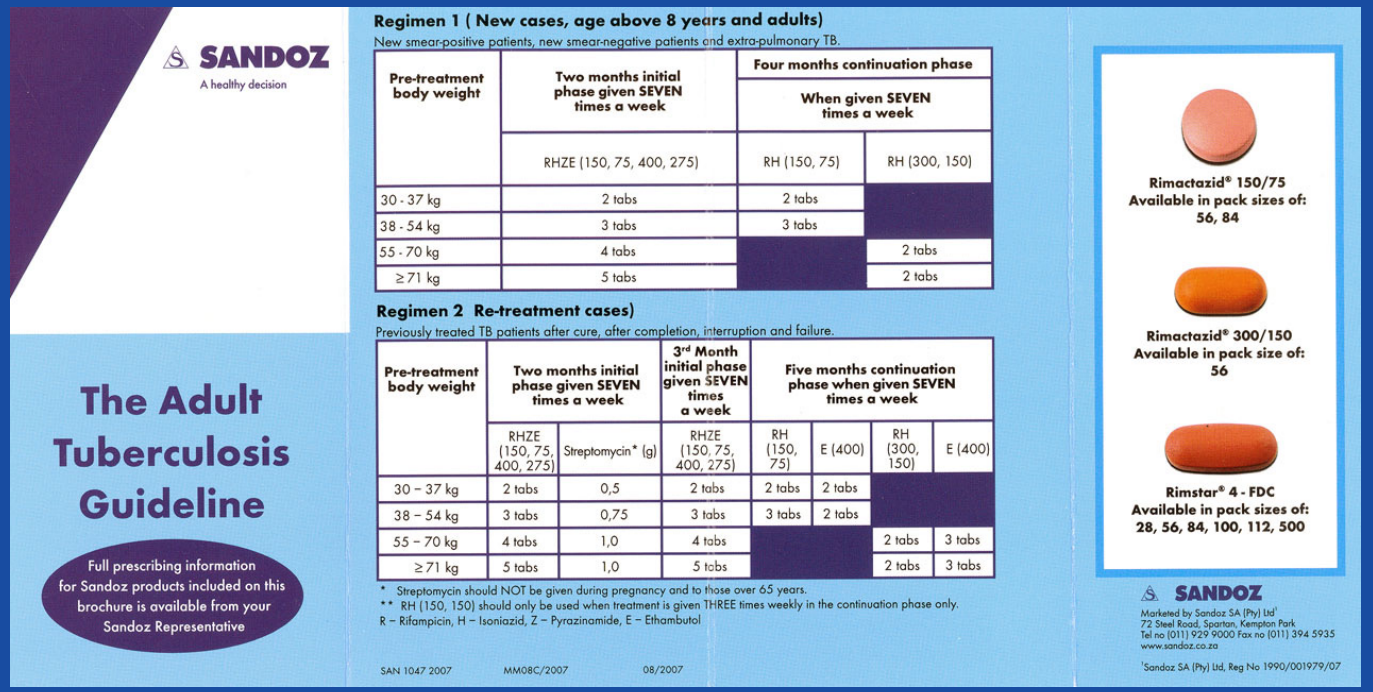
Response to anti-TB medication



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The Adult Tuberculosis Guideline

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Regimen 1 (New cases, age above 8 years and adults)

New smear-positive patients, new smear-negative patients and extra-pulmonary TB.

Pre-treatment body weight	Two months initial phase given SEVEN times a week	Four months continuation phase When given SEVEN times a week	
	RHZE (150, 75, 400, 275)	RH (150, 75)	RH (300, 150)
30 - 37 kg	2 tabs	2 tabs	
38 - 54 kg	3 tabs	3 tabs	
55 - 70 kg	4 tabs		2 tabs
≥ 71 kg	5 tabs		2 tabs

Regimen 2 Re-treatment cases)

Previously treated TB patients after cure, after completion, interruption and failure.

Pre-treatment body weight	Two months initial phase given SEVEN times a week		3rd Month initial phase given SEVEN times a week	Five months continuation phase when given SEVEN times a week			
	RHZE (150, 75, 400, 275)	Streptomycin* (g)	RHZE (150, 75, 400, 275)	RH (150, 75)	E (400)	RH (300, 150)	E (400)
30 – 37 kg	2 tabs	0,5	2 tabs	2 tabs	2 tabs		
38 – 54 kg	3 tabs	0,75	3 tabs	3 tabs	2 tabs		
55 – 70 kg	4 tabs	1,0	4 tabs			2 tabs	3 tabs
≥ 71 kg	5 tabs	1,0	5 tabs			2 tabs	3 tabs

* Streptomycin should NOT be given during pregnancy and to those over 65 years.
** RH (150, 150) should only be used when treatment is given THREE times weekly in the continuation phase only.
R – Rifampicin, H – Isoniazid, Z – Pyrazinamide, E – Ethambutol

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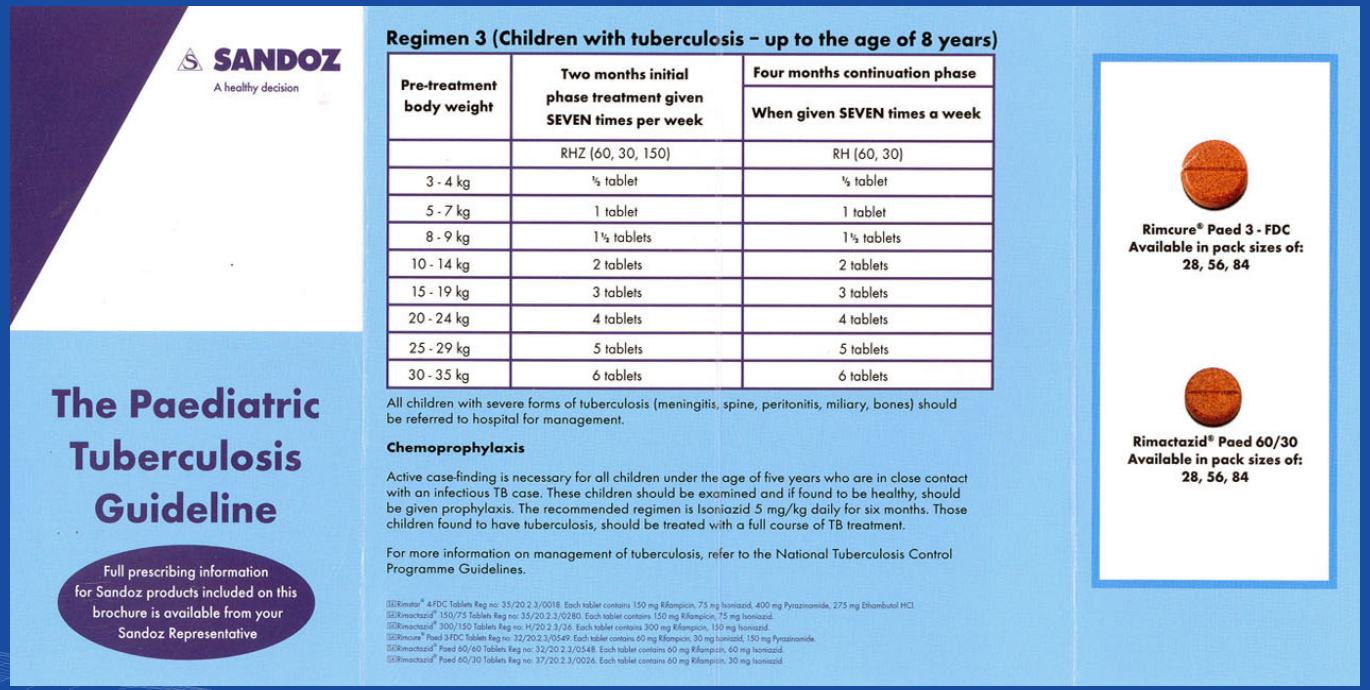

SANDOZ
A healthy decision

The Paediatric Tuberculosis Guideline

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Regimen 3 (Children with tuberculosis – up to the age of 8 years)

Pre-treatment body weight	Two months initial phase treatment given SEVEN times per week	Four months continuation phase When given SEVEN times a week
	RHZ (60, 30, 150)	RH (60, 30)
3 - 4 kg	⅛ tablet	⅛ tablet
5 - 7 kg	1 tablet	1 tablet
8 - 9 kg	1⅛ tablets	1⅛ tablets
10 - 14 kg	2 tablets	2 tablets
15 - 19 kg	3 tablets	3 tablets
20 - 24 kg	4 tablets	4 tablets
25 - 29 kg	5 tablets	5 tablets
30 - 35 kg	6 tablets	6 tablets

All children with severe forms of tuberculosis (meningitis, spine, peritonitis, miliary, bones) should be referred to hospital for management.

Chemoprophylaxis

Active case-finding is necessary for all children under the age of five years who are in close contact with an infectious TB case. These children should be examined and if found to be healthy, should be given prophylaxis. The recommended regimen is Isoniazid 5 mg/kg daily for six months. Those children found to have tuberculosis, should be treated with a full course of TB treatment.

For more information on management of tuberculosis, refer to the National Tuberculosis Control Programme Guidelines.

Rimstar® 4-FDC Tablets Reg no: 35/20.2.3/0018. Each tablet contains 150 mg Rifampicin, 75 mg Isoniazid, 400 mg Pyrazinamide, 275 mg Ethambutol HCl.
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Rimactazid® 300/150 Tablets Reg no: H/20.2.3/36. Each tablet contains 300 mg Rifampicin, 150 mg Isoniazid.
Rimcure® Paed 3-FDC Tablets Reg no: 32/20.2.3/0549. Each tablet contains 60 mg Rifampicin, 30 mg Isoniazid, 150 mg Pyrazinamide.
Rimactazid® Paed 60/60 Tablets Reg no: 32/20.2.3/0548. Each tablet contains 60 mg Rifampicin, 60 mg Isoniazid.
Rimactazid® Paed 60/30 Tablets Reg no: 37/20.2.3/0026. Each tablet contains 60 mg Rifampicin, 30 mg Isoniazid.

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FOREWORD BY
Archbishop Emeritus Desmond Tutu

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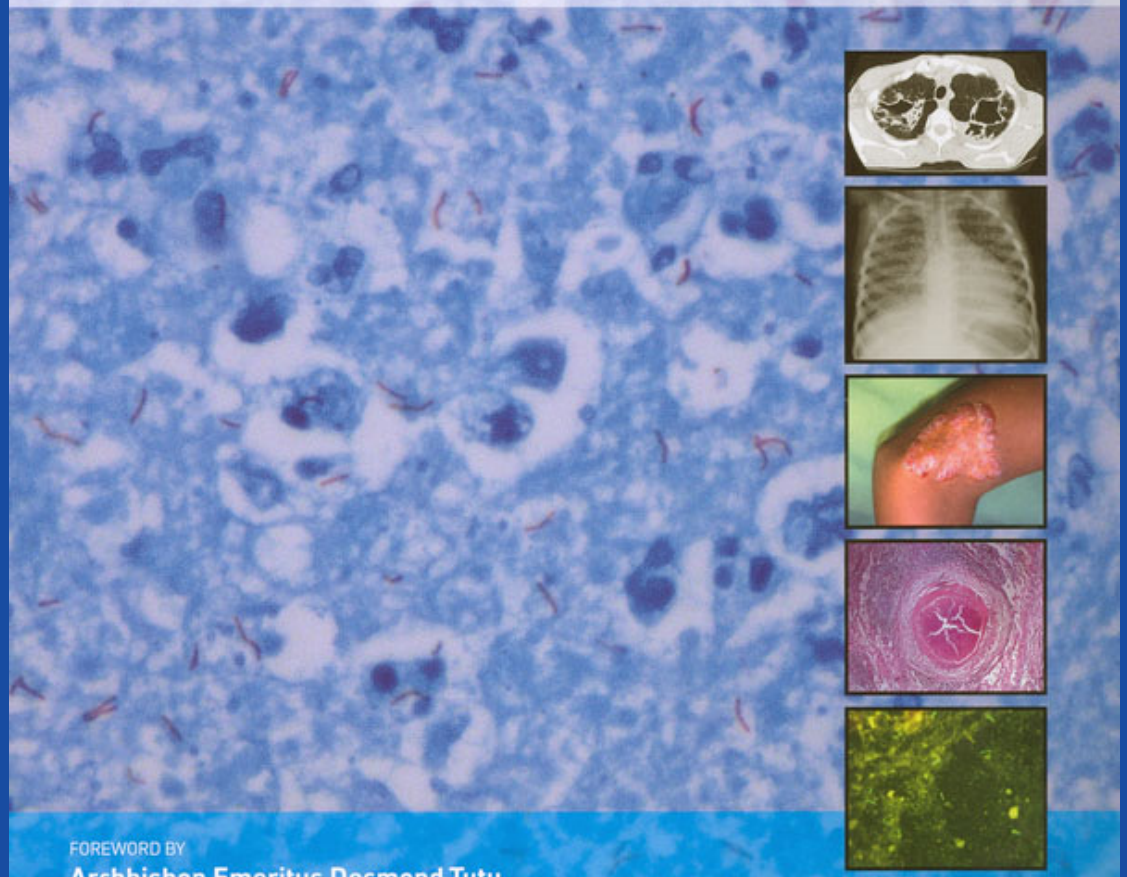

FOREWORD BY
Archbishop Emeritus Desmond Tutu

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TABLE 2. A PRACTICAL GUIDE TO THE DIAGNOSIS AND MANAGEMENT CUTANEOUS TUBERCULOSIS

	Definite cutaneous TB	Probable cutaneous TB	Possible cutaneous TB
Clinical morphology	Variable combinations and transitions of papular, nodular, pustular, papulonecrotic, pustulonecrotic, ulcerative, vegetating skin lesions.		
Histopathology	Variable combinations and transitions of granulomatous inflammation, mixed acute and chronic inflammatory cells, necrosis, vasculitis, organisation and fibrosis, other non-specific changes		
ZN and / or culture and / or PCR on skin lesion biopsy	+^	-	-
ZN and / or culture and / or PCR on specimen from origin other than skin	NEFD	+*	-
Mantoux test result	NEFD	+* (only in children <5 years old)	-
X-ray findings compatible with TB e.g. lung, bone, etc.	NEFD	+*	-
Response to antiTB treatment	NEFD	NEFD	EFD

TB : Tuberculosis
ZN : Ziehl-Neelsen stain
PCR : Polymerase chain reaction
NEFD : Not essential for diagnosis
EFD : Essential for diagnosis (but not necessarily proof of tuberculosis)
^ : When only ZN positive, distinction from environmental (non-tuberculous) mycobacteria is necessary by culture and / or PCR
* : Any positive establishes the diagnosis of probable tuberculosis

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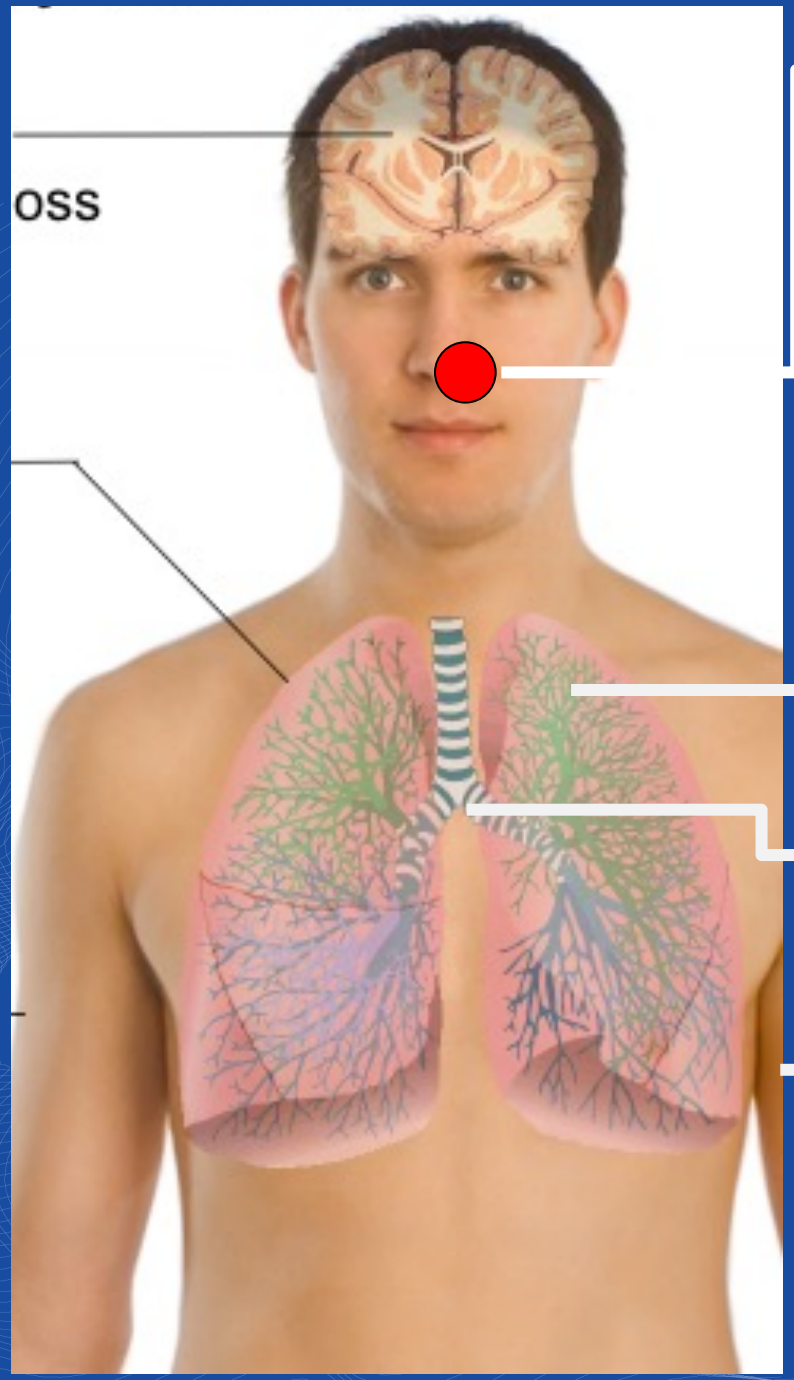
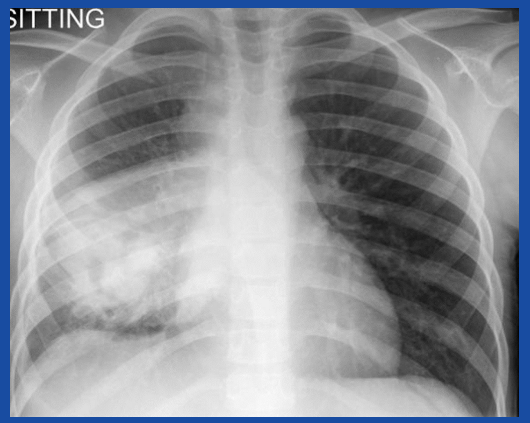


Skin biopsy → Histology, ZN stain, TB culture, PCR → **DEFINITE** cutaneous TB

CXR



Lungs, Bones → **PROBABLE** cutaneous TB

Any other specimen other than the skin → Histology, ZN stain, TB culture, PCR → **PROBABLE** cutaneous TB

Mantoux → **PROBABLE** cutaneous TB

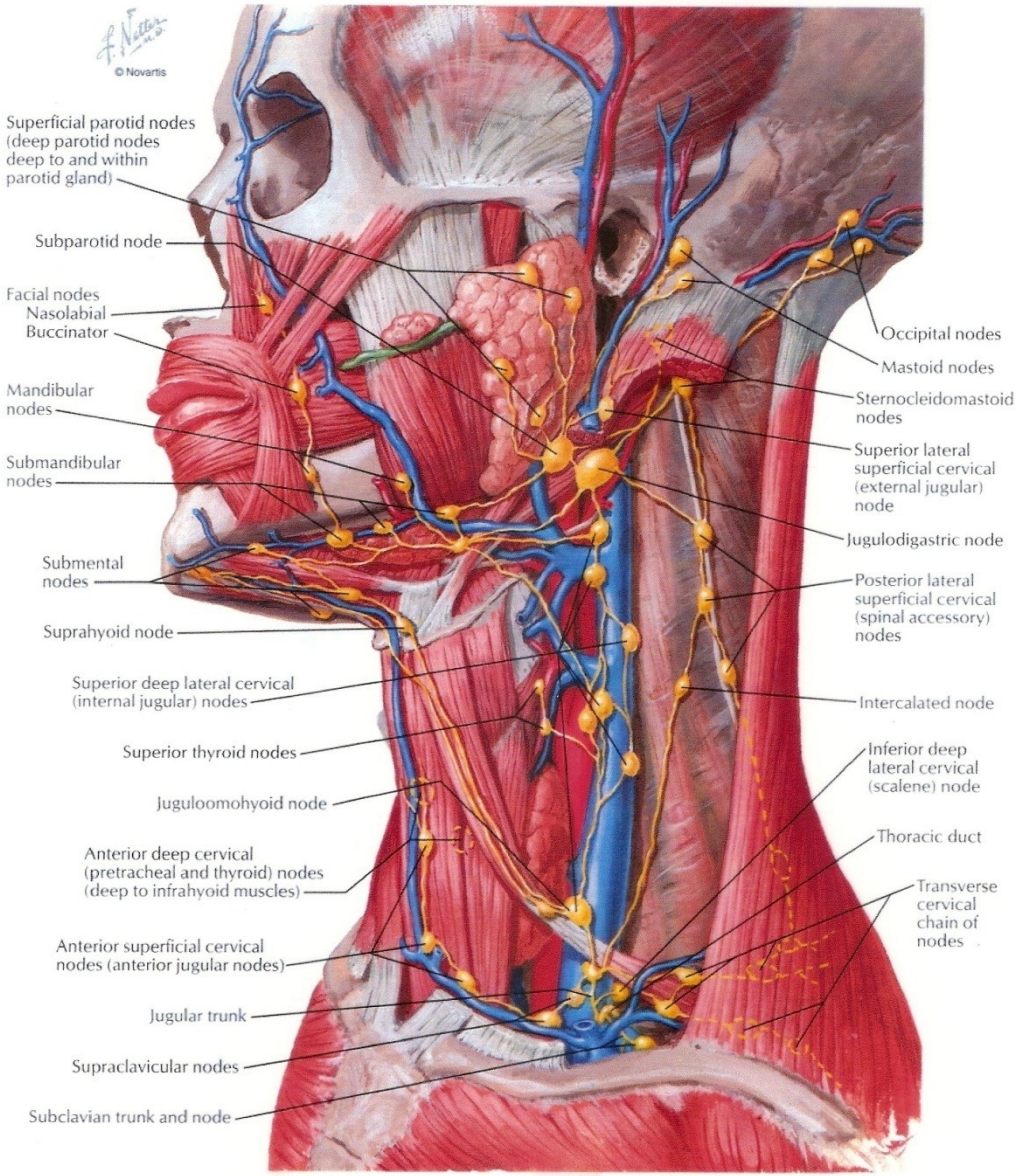
Response to ant-TB meds → **POSSIBLE** cutaneous TB

Examples of cutaneous TB


50mg
13.12.2005 11

Lymph Vessels and Nodes of Head and Neck

SEE ALSO PLATE 197

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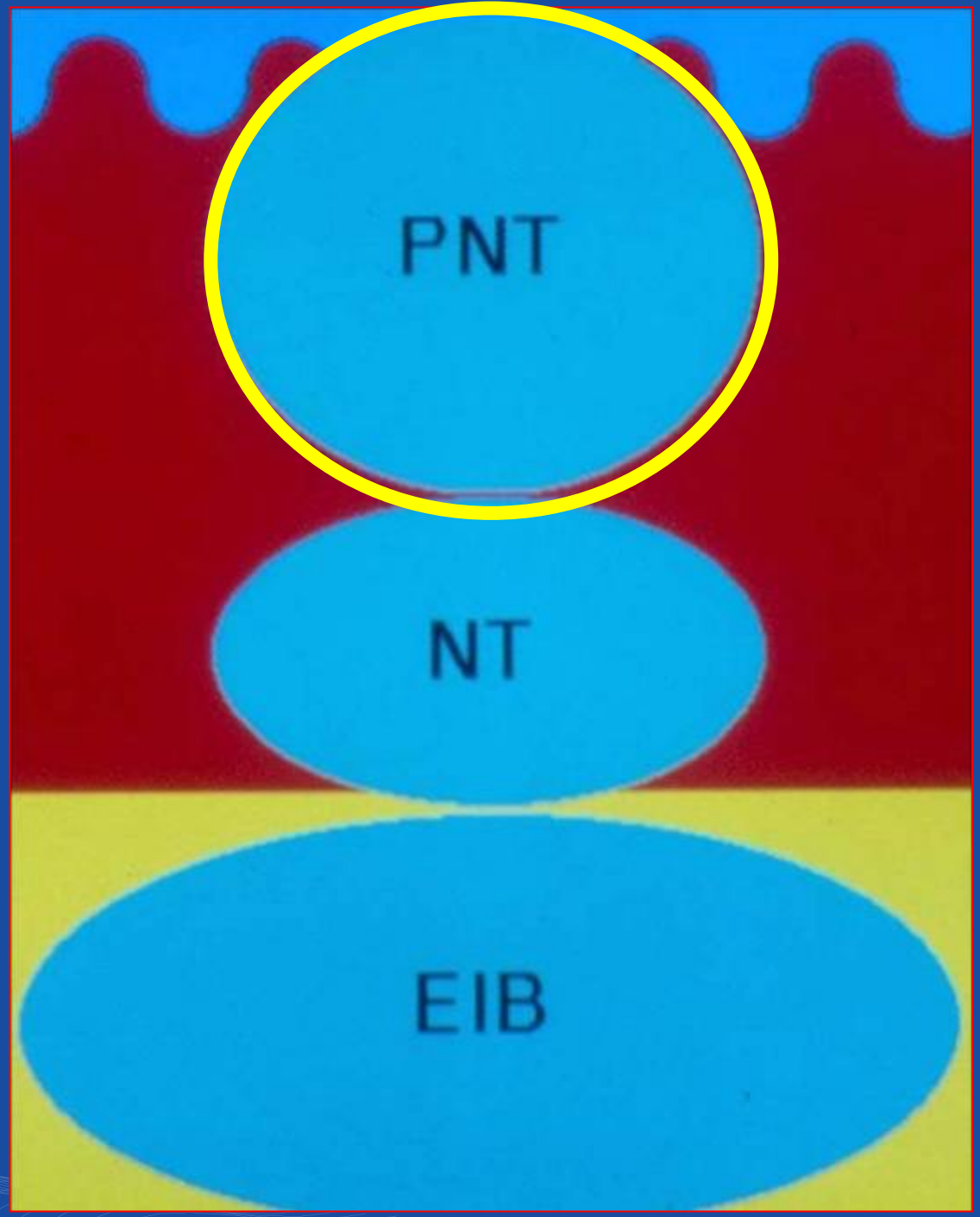
Tuberculids

- Papulonecrotic tuberculid (PNT)
- Erythema induratum of Bazin (EIB)
- Nodular tuberculid (NT)
- Lichen scrofulosorum (LS)
- Phlebitic tuberculid (PT)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NT
EIB


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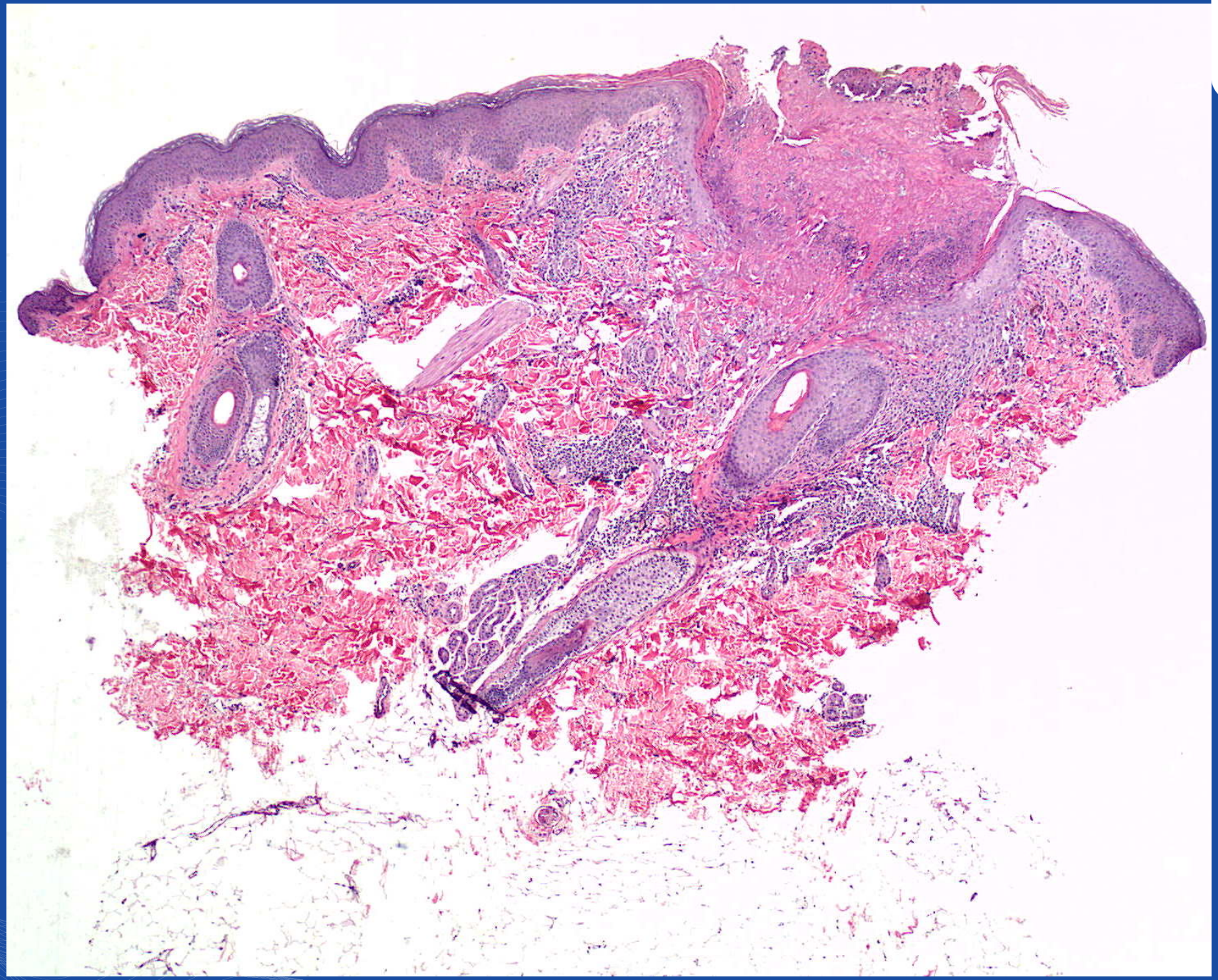

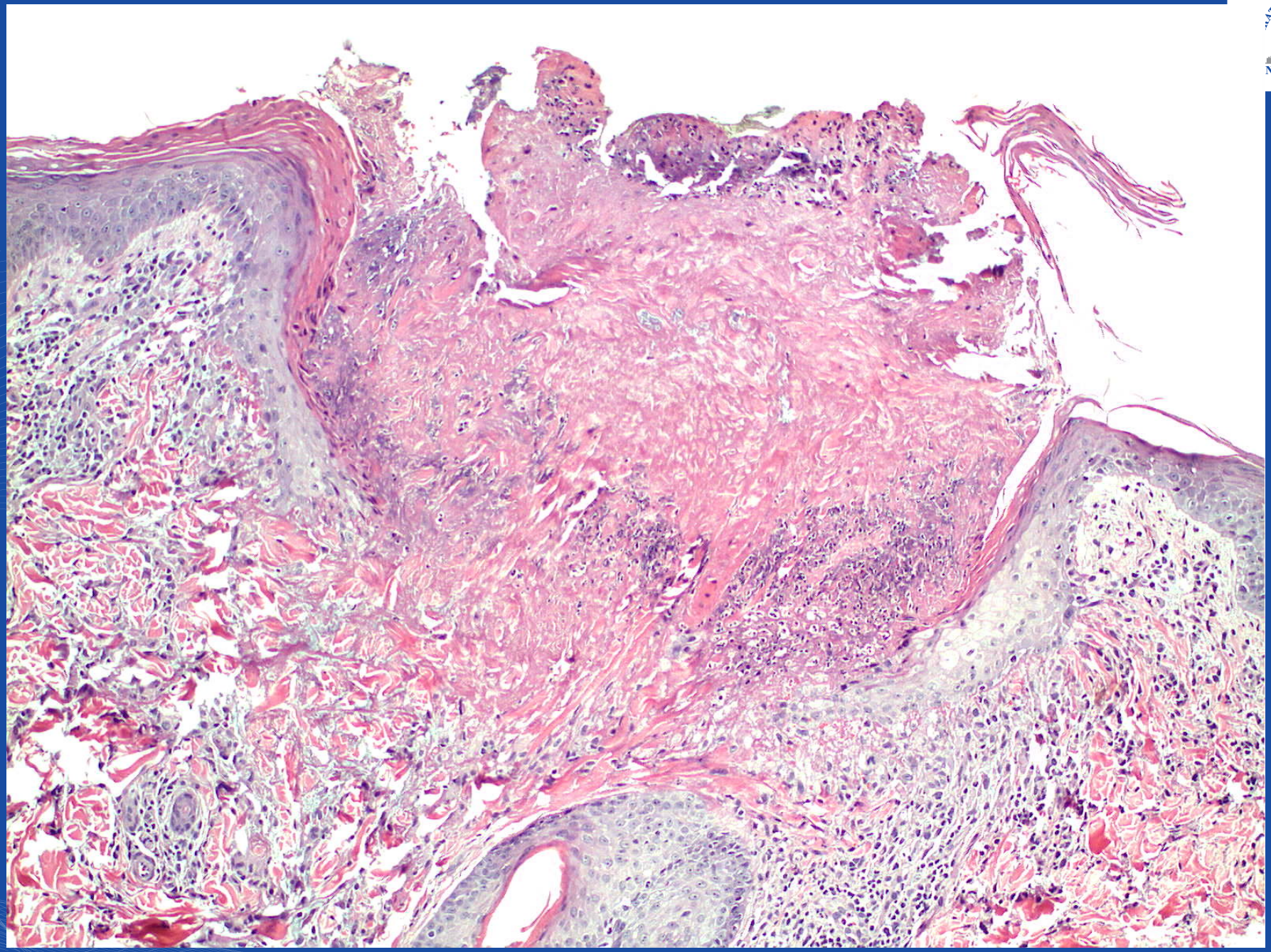

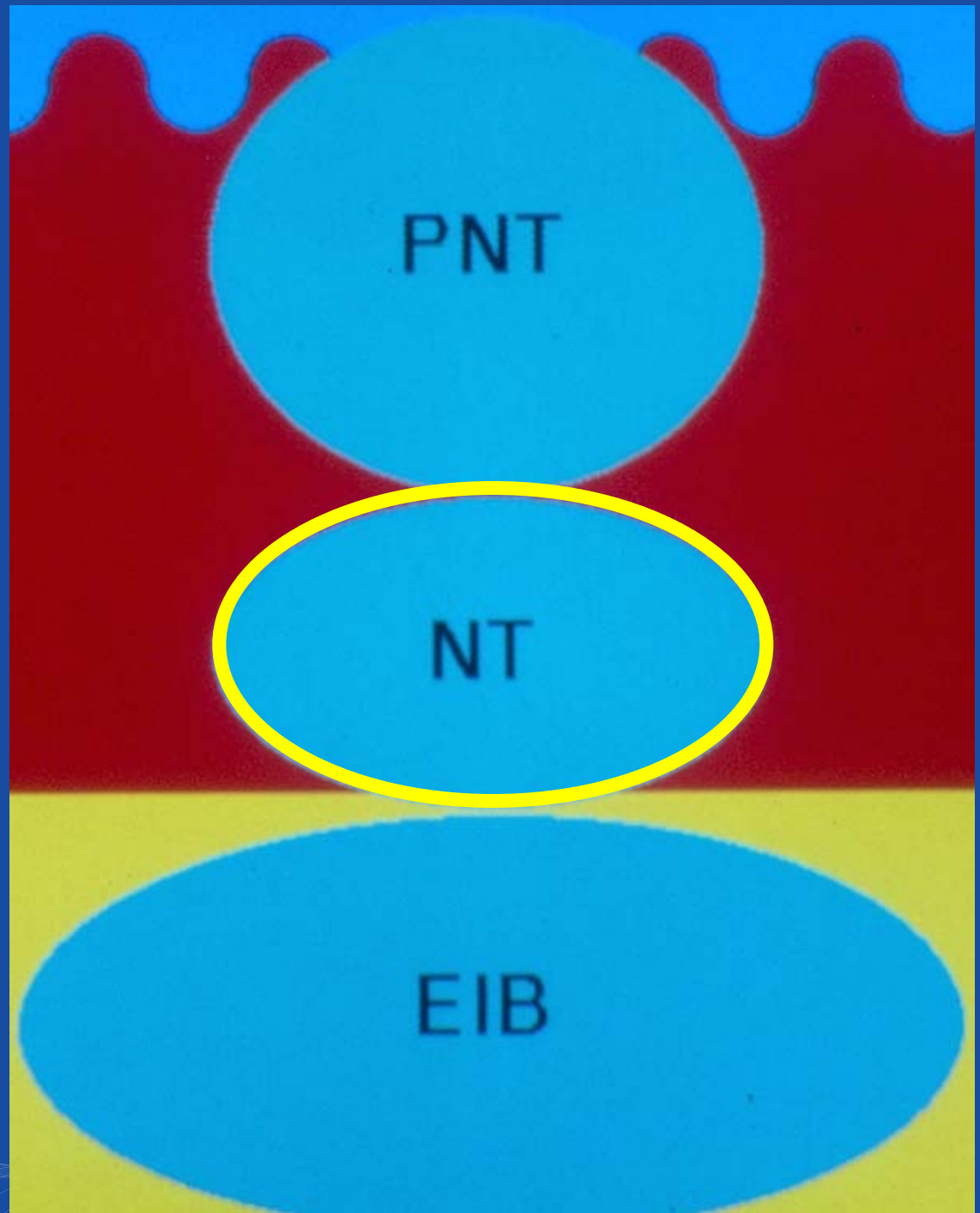
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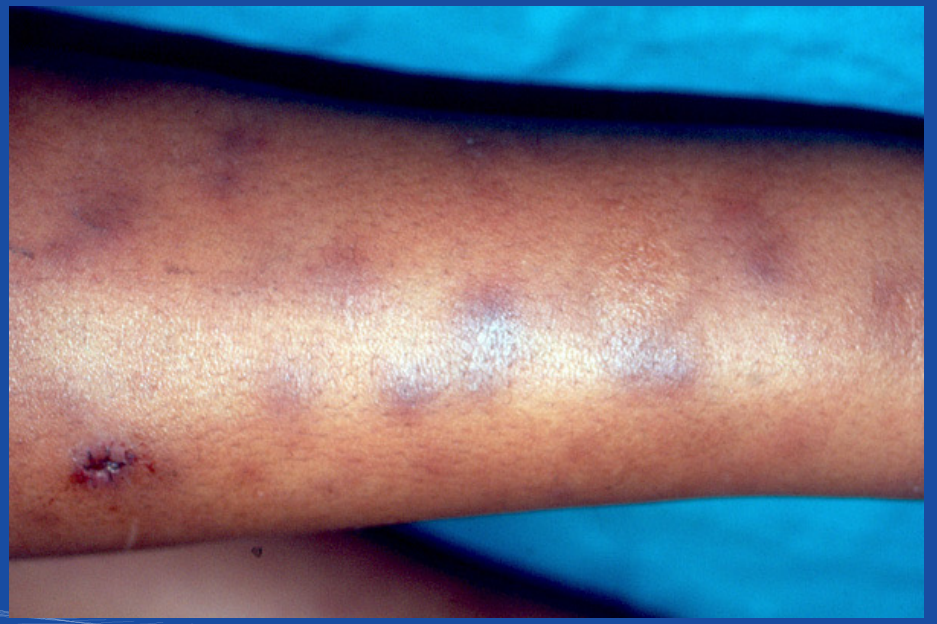


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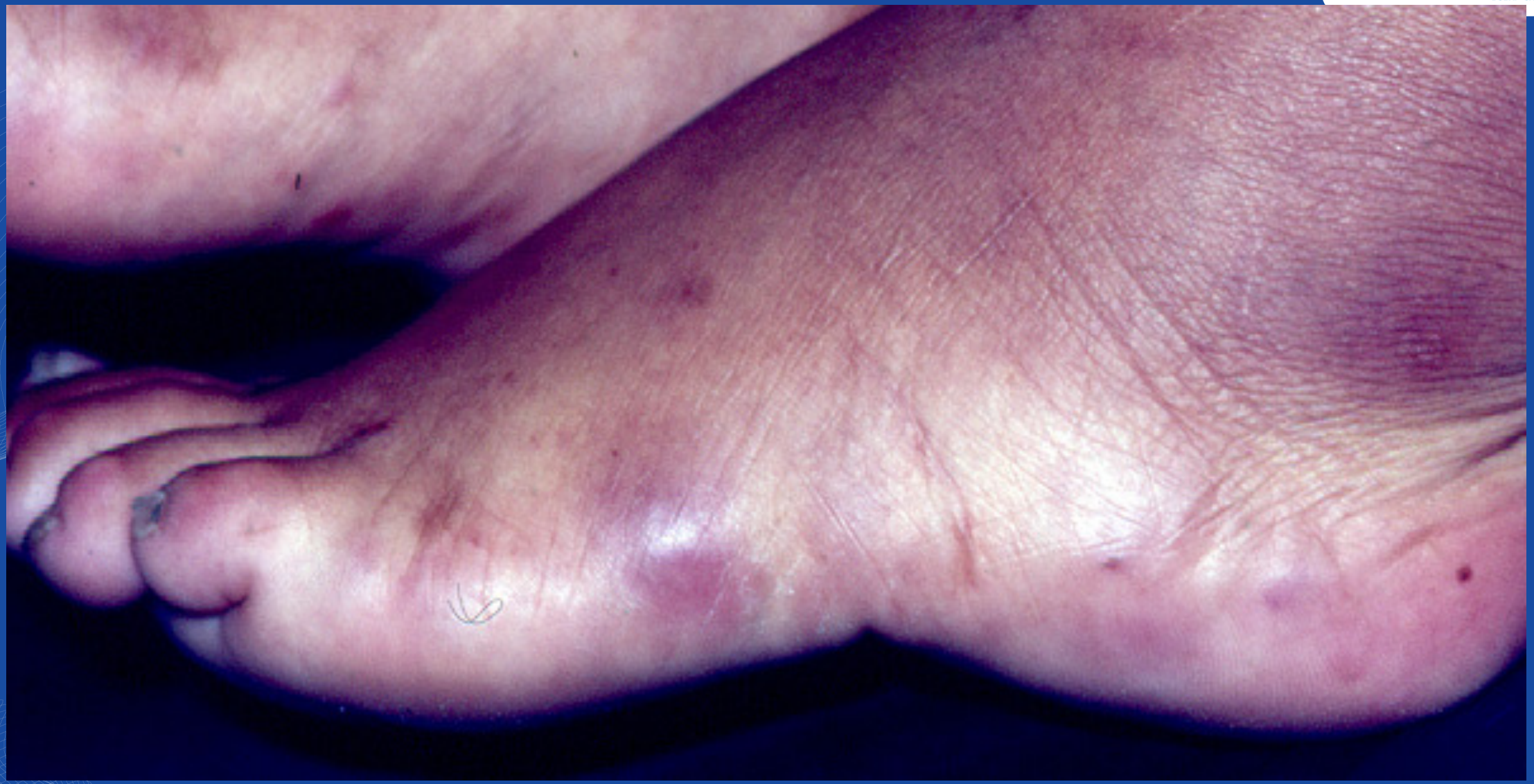

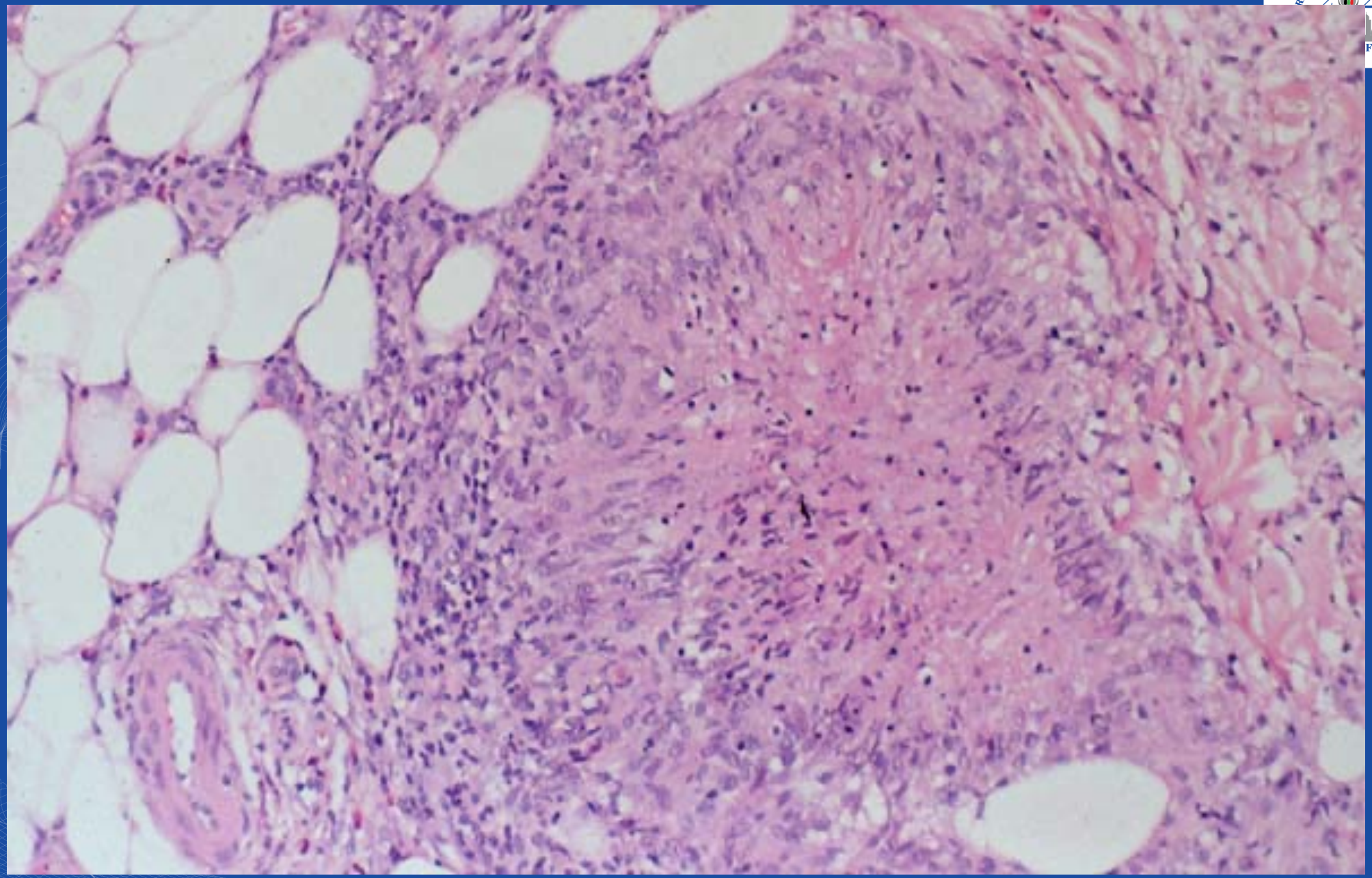

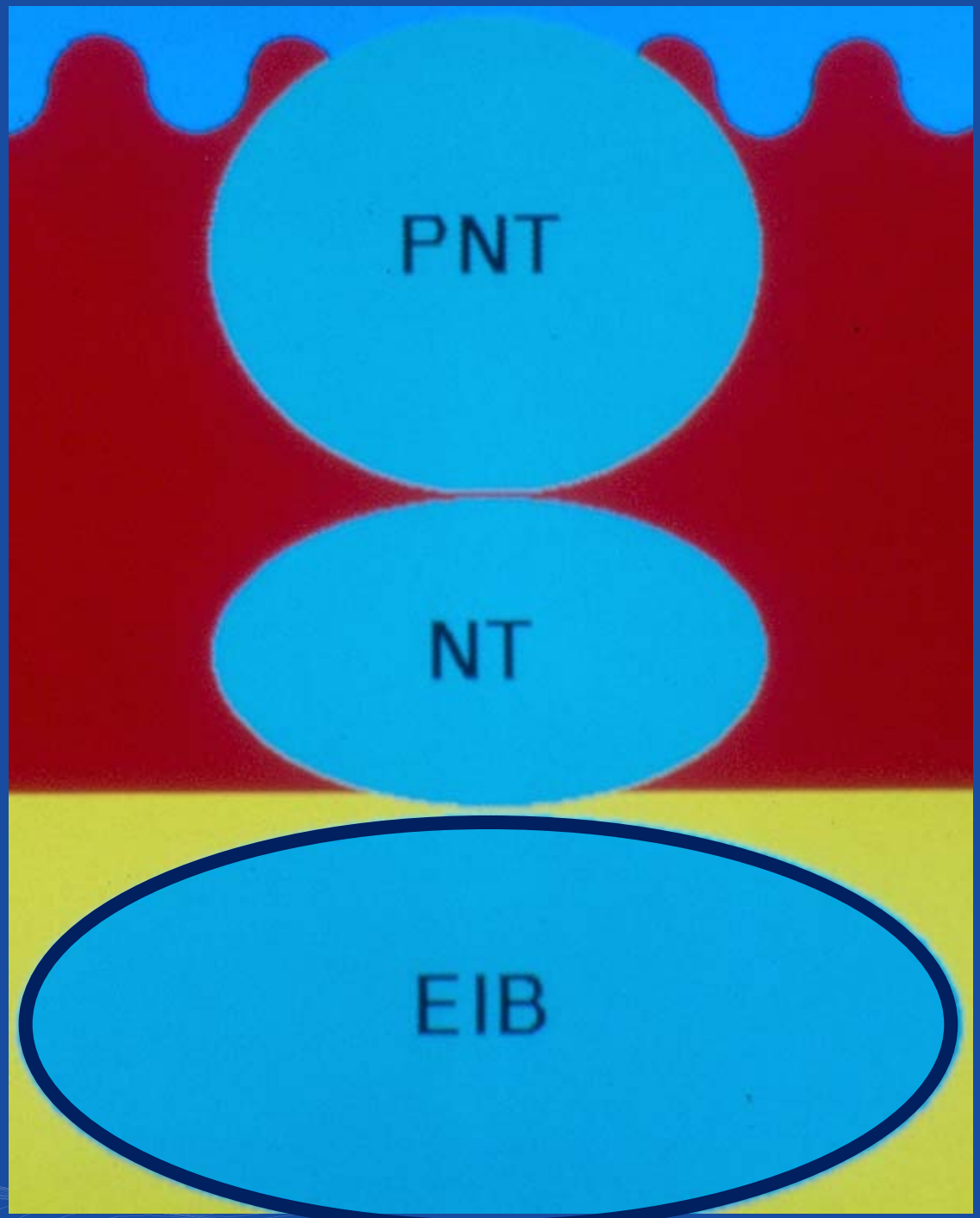
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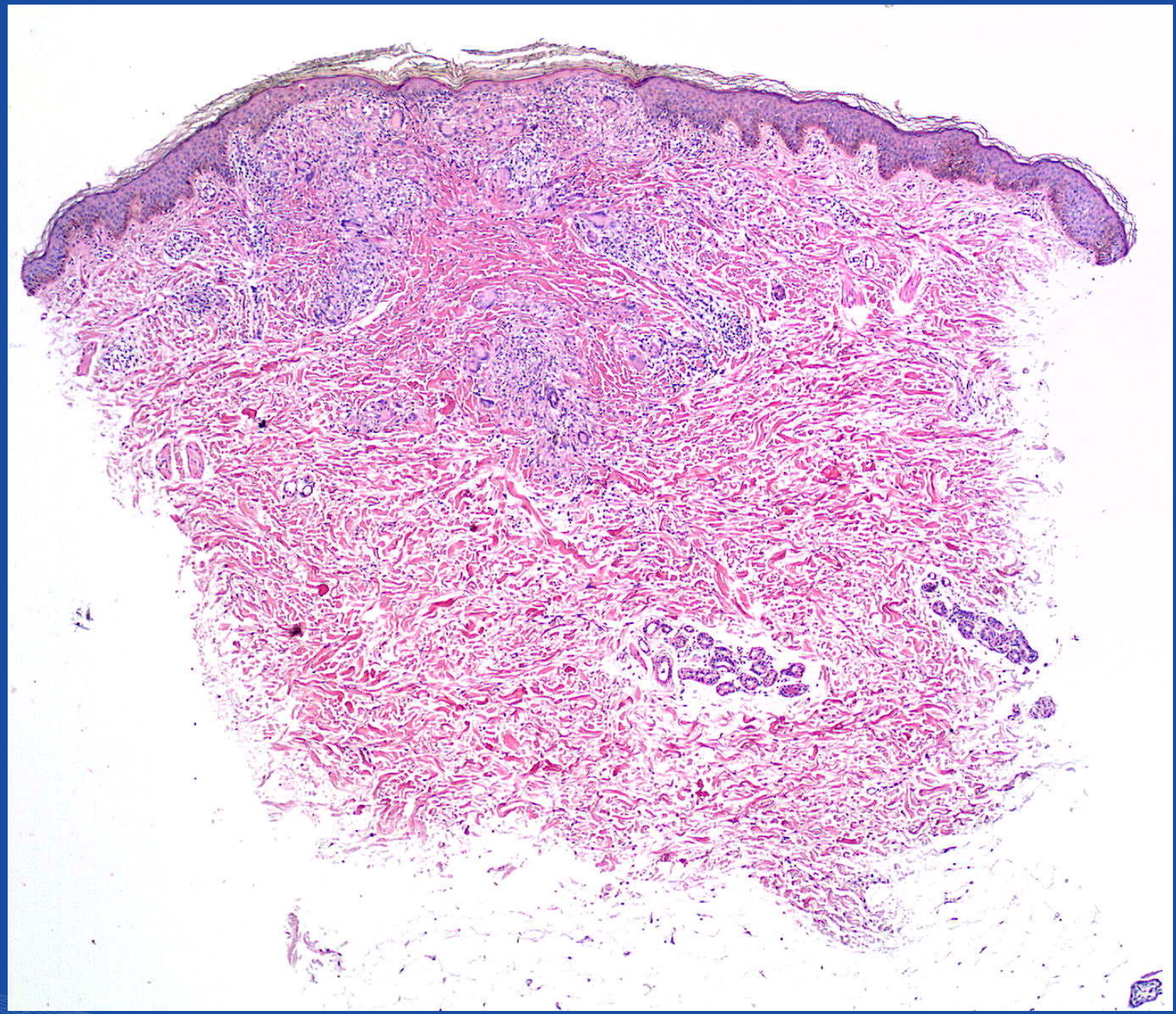

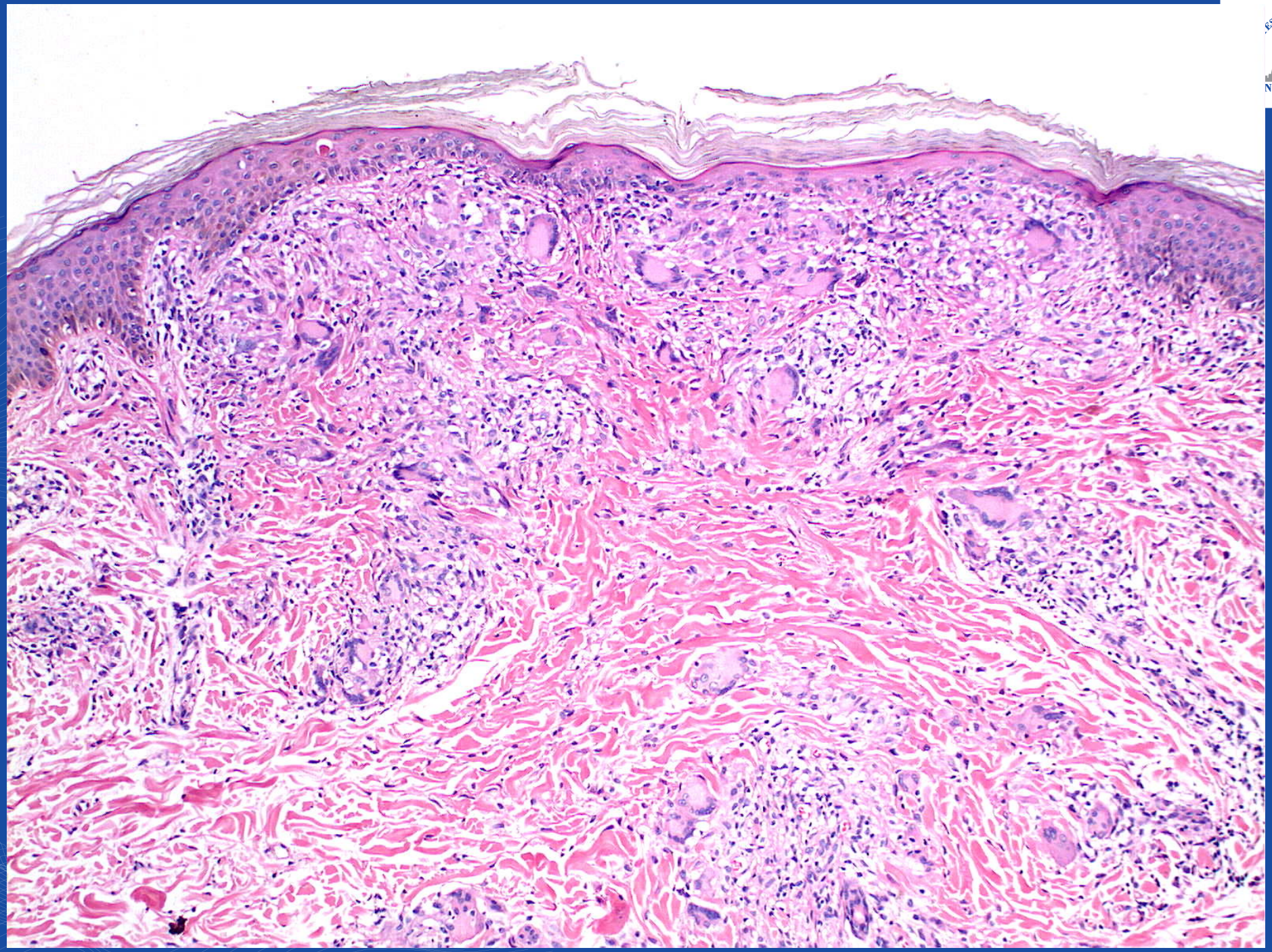

Case report

Superficial thrombophlebitic tuberculide

Hendrick M. Motswaledi, FCDerm (SA), and E. Joy Schulz, MMed (Derm)

From the Department of Dermatology, University of Limpopo and Division of Dermatology, Department of Medicine, University of the Witwatersrand, South Africa

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Abstract

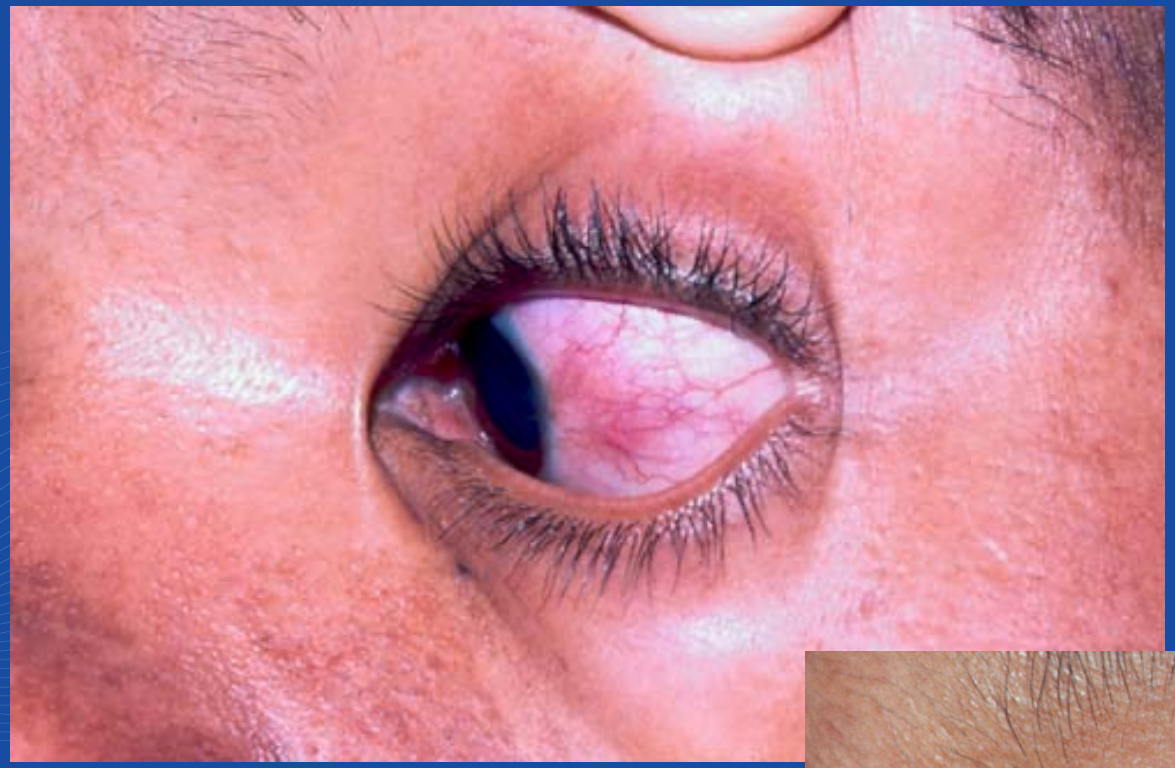
Background Tuberculides are the result of immunologic reactions to hematogenously spread antigenic components of *Mycobacterium tuberculosis*. There are three recognized tuberculides – papulonecrotic tuberculide, erythema induratum of Bazin, and lichen scrofulosorum. In 1997, in Japan, Hara and coworkers reported five patients with what they called "nodular granulomatous phlebitis," which they proposed was a fourth type of tuberculide. We describe a patient who presented with features identical to those reported by Hara *et al.* in order to draw attention to the previous report and to support the concept of a fourth tuberculide which clinically resembles superficial thrombophlebitis.

Methods A black South African man presented with cord-like thickening of superficial veins on the antero-medial aspects of the lower legs. Nodular swellings were palpable along the course of these veins. There was no evidence of tuberculosis elsewhere in the body, but the patient had a strongly positive tuberculin reaction. Skin biopsies were performed for histologic examination, culture, and polymerase chain reaction (PCR).

Results Histologic examination showed a granulomatous infiltrate localized to the veins in the subcutaneous fat. Stains for acid-fast bacilli and culture were negative, but PCR was positive for *M. tuberculosis* DNA. The lesions responded promptly to antituberculous therapy.

Conclusions Our patient showed features identical to those of cases described by Hara and coworkers and assigned as a fourth type of tuberculide. As the lesions clinically resemble superficial thrombophlebitis, we propose the term "superficial thrombophlebitic tuberculide" rather than "nodular granulomatous phlebitis."

Int J Dermatol 2006; 45: 1337-1340



Phlyctenular

conjunctivitis/keratoconjuntivitis

= a hypersensitivity reaction to antigens

Staphylococcal
Chlamydia
TB
Cooccidiodes imitis
Some parasites
Candida
Idiopathic

Tuberculids

Papulonecrotic tuberculid
Erythema induratum of Bazin
Nodular tuberculid
Lichen scrofulosorum
Phlebitic tuberculid

Management

- The current consensus: **standard 6-month TB treatment regimen** (2-month intensive phase with rifampicin, isoniazid, pyrazinamide, and ethambutol (RHZE) followed by 4 months of rifampicin and isoniazid)
- **Trial of treatment**: standard TB treatment for 5-6 weeks, then review for response
- **Treatment of tuberculids**: the same as for other forms of cutaneous TB
- Recommended treatment for Erythema induratum is the standard 6-month regimen, with the **addition of a longer treatment period of isoniazid 400mg/day for up to 2 years** (11,21,28).
- Pyridoxine should be added in all cases to prevent peripheral neuropathy.

Cutaneous Tuberculosis: A Retrospective Review at a South African Tertiary Dermatology Unit

Principal investigator

Dr Barbara van der Westhuizen

Division of Dermatology, Stellenbosch University

Study period of **5 years**, from 1 January 2018 to 31 December 2022

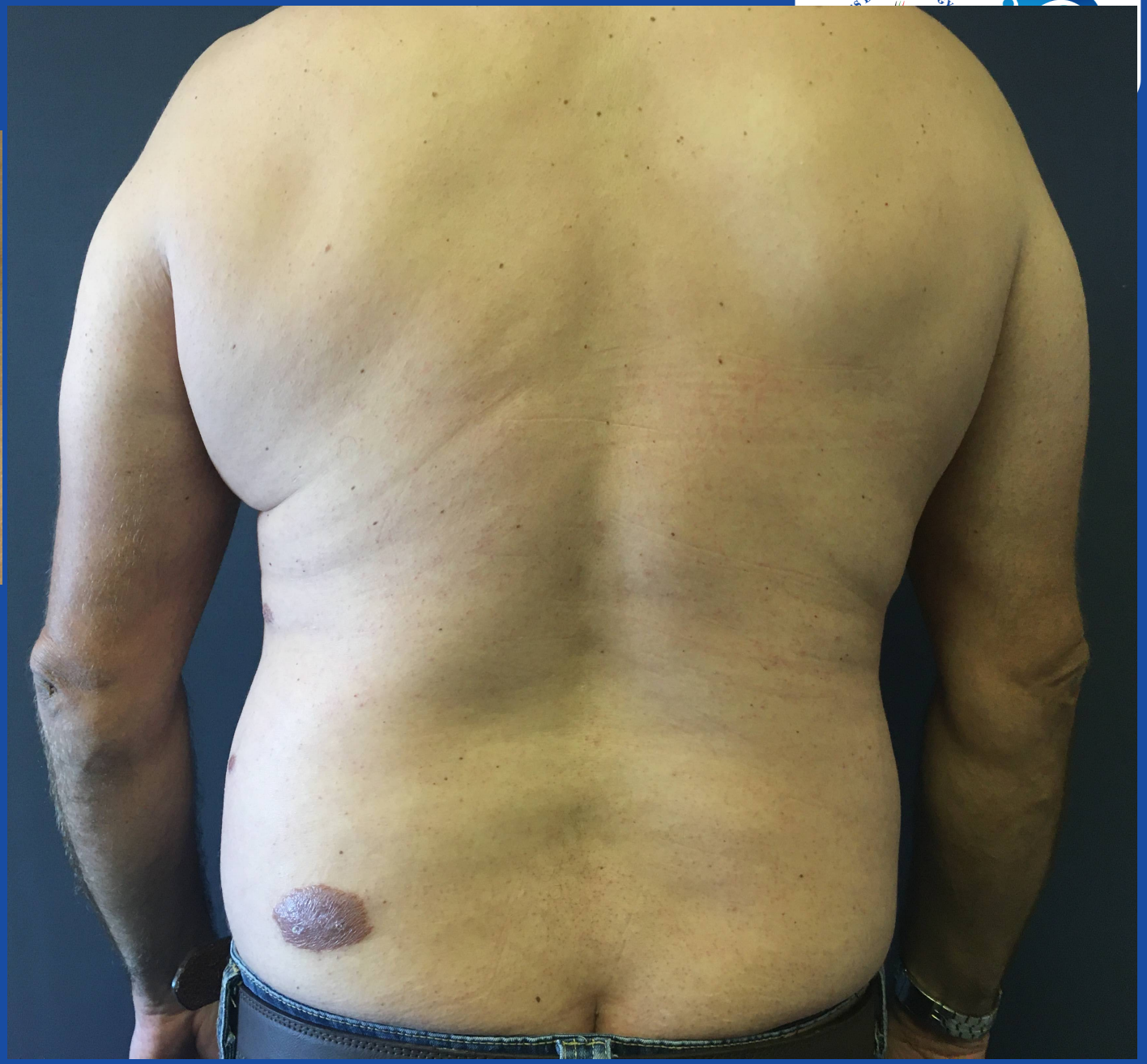
Table 1: Demographics of patients with cutaneous TB ($n = 29$)

Variable	Frequency, *n*	Percentage, %
Age		
<10y	8	27.6
11-20y	2	6.9
21-30y	5	17.2
31-40y	7	24.1
41-50y	5	17.2
51-60y	2	6.9
Gender		
Male	18	62.1
Female	11	37.9
HIV infection		
Yes	4	13.8
No	23	79.3
Unknown	2	6.9
Known TB contact		
Yes	2	6.9
No	10	34.5
Not documented	17	58.6

Morphology by subtype			
Erythema induratum of Bazin	Nodules	14	100
Lupus vulgaris	Plaques	5	55.6
	Papules and plaques	2	22.2
	Nodules	1	11.1
	Plaques/nodules with ulceration	1	11.1
Papulonecrotic tuberculid	Papules	3	100
Scrofuloderma	Plaques/nodules with ulceration	2	100
Miliary TB	Papules	1	100

Cutaneous tuberculosis (lupus vulgaris-type)

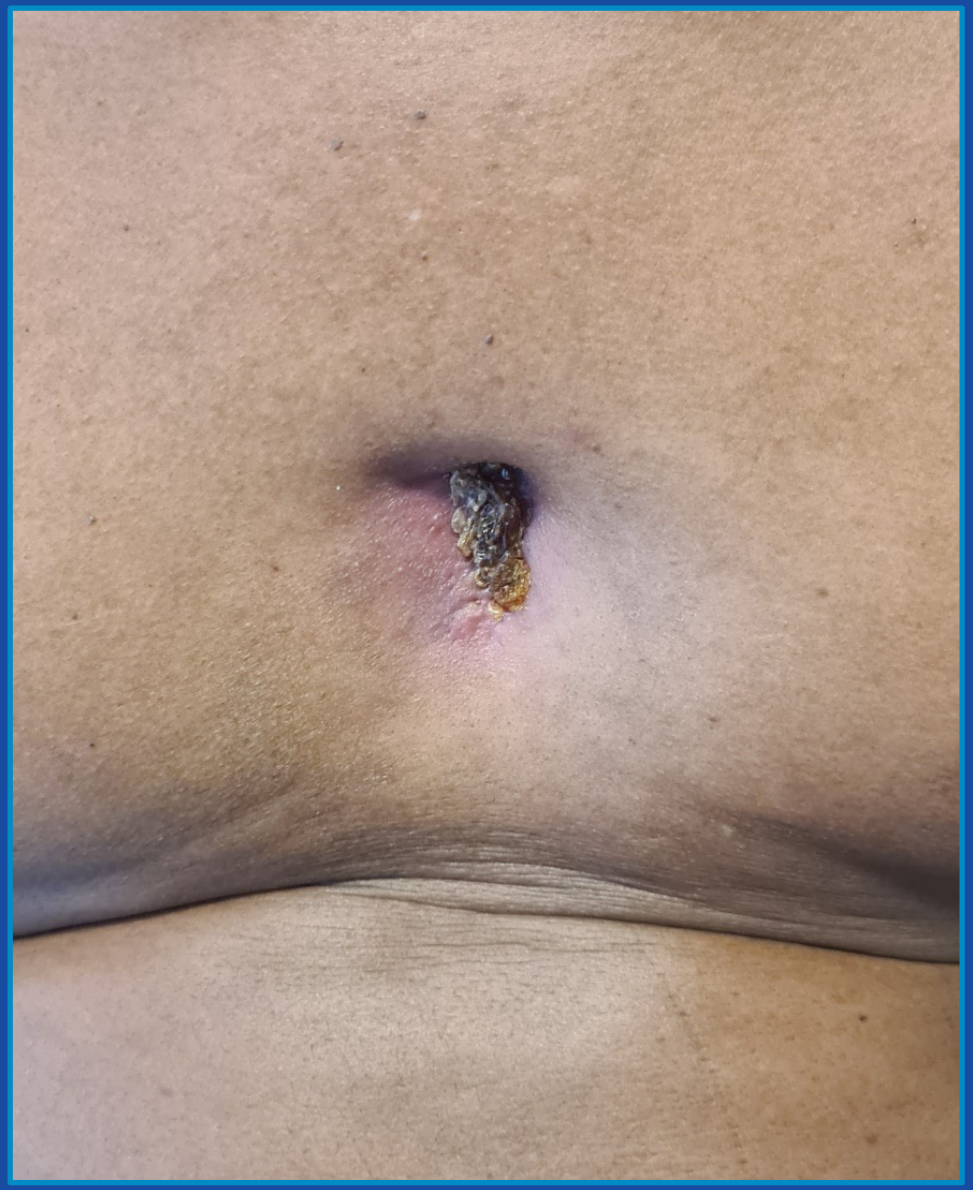
January 2022
•IDCases 27(4):e01394
•DOI: 10.1016/j.idcr.2022.e01394 JC Gallo, S Claasens, WI Visser




OLWEPHONDO:
MAYIPHIN
KWAYO
SOLWAPHU
SISENZO

Image 14,15,16. At 4 months

Baseline



At 6 weeks

At 10 weeks

Conclusion

- Cutaneous TB is **uncommon**
- Cutaneous TB has **diverse morphologies**
- Diagnosing cutaneous TB is **challenging**
- **Awareness** of cutaneous TB could aid in early diagnosis and treatment

Thank you