FRCPath Microbiology revision

Erysipelothrix rhusiopathiae

Zoonotic Gram-positive rod • erysipeloid • vancomycin resistance trap

May 2026

Microregistrar

Exam quick take

Most testable pattern

Fish-handler or butcher + violaceous painful finger plaque + Gram-positive rod

Zoonosis; reservoirs include swine, poultry, fish, sheep and turkeys.
Small, slender, pleomorphic, non-sporing Gram-positive rod.
Classic syndrome: localised cutaneous erysipeloid.
Key antimicrobial trap: often resistant to vancomycin.

1 **Exposure clue**

2 **Violaceous lesion**

3 **Vancomycin resistant**

Reservoirs and exposure

Think occupational or animal-product exposure.

Human infection usually follows direct cutaneous exposure in fish handlers, butchers, abattoir workers, farmers, veterinarians and meat-processing workers.

Domestic swine are described as a principal reservoir, with tonsils, lymphoid tissue and faeces important for carriage/shedding.

Non-occupational cases occur, suggesting possible oropharyngeal/GI colonisation.

Exam framing

Fish exposure is the common clue. Do not default to Staph/Strep cellulitis without considering erysipeloid.

Reservoirs

swine • poultry • fish • sheep • turkeys

Clinical spectrum

Disease ranges from self-limited local cutaneous infection to invasive disease.

Localised erysipeloid

Most common; classically fingers/hands after minor trauma.

Diffuse cutaneous disease

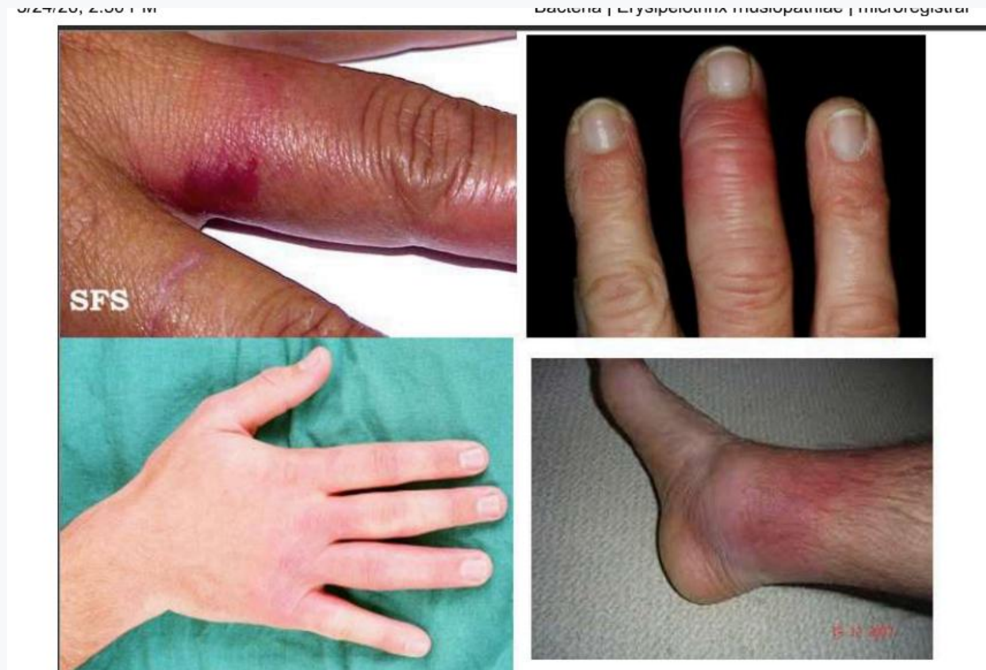
Multiple erythematous/violaceous plaques; may have fever, malaise, arthralgia/myalgia.

Bacteraemia / endocarditis

Rare but important; native-valve endocarditis is highlighted in the source.

Comorbidities over-represented in systemic infection include cardiovascular disease, diabetes, alcoholism and chronic liver disease.

Erysipeloid: the classic presentation



Clinical images reproduced from supplied PDF page 3.

Clinical recognition

Usually appears on fingers, hands or other exposed skin after minor trauma.
Typical incubation described as 1–7 days after exposure.
Well-demarcated, violaceous, non-suppurative plaque with raised borders.
Burning/throbbing pain; occasional vesicles; usually little systemic upset.
Often self-limiting over 2–4 weeks.

Differentiate from Staph/Strep cellulitis: violaceous colour, severe pain and lack of suppuration.

Systemic disease and endocarditis

Rare, but high-stakes when bacteraemia is present.

Systemic E. rhusiopathiae infection can present with bacteraemia, sepsis and infective endocarditis.
The PDF highlights a high association between bacteraemia and endocarditis.
If blood culture is positive, investigate for endocarditis with echocardiography.
Erysipeloid-like skin lesions may accompany invasive disease.

Do not miss

Bacteraemia + Gram-positive rod + animal/fish exposure

→ think echo and active beta-lactam therapy

Laboratory diagnosis

Sampling

Lesion biopsy: organisms are in the deeper part of the lesion; take a deep/full-thickness sample.
Blood culture: if positive, investigate for endocarditis.

Culture clues

May be small and slow to appear on standard aerobic media such as blood agar.
Can be misinterpreted as normal flora/contaminants.
On TSI agar, hydrogen sulphide production can blacken the butt.

acteristic	Description
th	Small alpha-hemolytic colonies after 24-48 hours
en requirement	Facultatively anaerobic
hology	Slender, gram-positive rods; may form filaments in older cultu
ase	Negative
production	Positive on triple sugar iron agar
n hydrolysis	Negative
ity	Negative
fication methods	MALDI-TOF MS, PCR targeting specific genes

differentiate it from Arcanobacterium and Listeria, use -

rcanobacterium is beta haemolytic, while Erysipelothrix is alpha haemolytic.
steria is catalase-positive, has a tight zone of beta-haemolysis, and is motile. Erysipeloth
atalase-negative, alpha-haemolytic, and non-motile.

Lab-characteristic table reproduced from supplied PDF page 4.

Identification: pattern and pitfalls

Phenotypic pattern

Gram-positive, non-motile rods.
Catalase-negative, H2S-positive.
Alpha-haemolytic colonies after 24–48 hours.
Esculin hydrolysis negative.

Differential traps

Arcanobacterium: beta-haemolytic; Erysipelothrix is alpha-haemolytic.
Listeria: catalase-positive and motile; Erysipelothrix is catalase-negative and non-motile.
MALDI-TOF MS can provide rapid species-level identification in routine labs.

Most useful bench memory: Gram-positive rod + H2S positive + vancomycin resistant + penicillin susceptible

Antimicrobial susceptibility: the exam trap

/24/26, 2:30 PM Bacteria | Erysipelothrix rhusiopathiae | microregistrar

Some resistance	• erythromycin, tetracycline, and chloramphenicol.
Resistant to	• vancomycin, teicoplanin, daptomycin, trimethoprim-sulfamethoxazole, gentamicin, and netilmicin

https://pubmed.ncbi.nlm.nih.gov/2291674/

Susceptibility table reproduced from supplied PDF pages 4–5.

Key pattern

Penicillin and imipenem are described as the most active agents.
Also listed as susceptible/followed by: piperacillin, cefotaxime, ciprofloxacin, pefloxacin and clindamycin.
Resistance list includes vancomycin, teicoplanin, daptomycin, trimethoprim-sulfamethoxazole, gentamicin and netilmicin.

Vancomycin resistance is the single highest-yield point.

Empiric glycopeptide-only cover is unsafe if this organism is plausible.

Treatment approach

Localised erysipeloid

Oral penicillin such as phenoxymethylpenicillin or amoxicillin for 7–10 days is described as first-line in the PDF.
Alternatives in penicillin allergy include first-generation cephalosporins, clindamycin or fluoroquinolones.
Mild cases may resolve without therapy, but treatment reduces symptom duration and progression risk.

Diffuse/systemic disease

Requires parenteral therapy, usually intravenous penicillin G or ceftriaxone.
Endocarditis and osteo-articular infections have required prolonged bactericidal beta-lactam therapy, often 4–6 weeks or longer.
Valve or bone/joint complications may need surgical intervention.

At-risk bacteraemic fish handlers with a negative Gram stain report: include an active beta-lactam until Erysipelothrix is excluded or identified.

FRCPath-style “don’t miss” checklist

Exposure	Fish/meat/animal-product occupational exposure
Lesion	Violaceous, non-suppurative painful plaque
Lab	Gram-positive slender rod; catalase-negative; H2S positive
Pitfall	Do not dismiss as contaminant if exposure and syndrome fit
Therapy	Penicillin active; vancomycin resistance is high-yield
Systemic	Positive blood culture → assess for endocarditis

Likely exam phrase: **“Fish handler with painful violaceous finger cellulitis; Gram-positive rod isolated.”**

Source: supplied Microregistrar PDF, May 2026

Reference points from supplied material

This deck is derived from the supplied Microregistrar PDF on Erysipelothrix rhusiopathiae. External references shown in the PDF include:

Clinical Microbiology Reviews article: journals.asm.org/doi/10.1128/cmr.2.4.354
PubMed record: pubmed.ncbi.nlm.nih.gov/2291674/
PMC articles: PMC9113682 and PMC12035787
BMJ Case Reports: 14/5/e240073
ScienceDirect article: S2214250925001854

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