

Erysipelothrix rhusiopathiae

A Clinical Guide to the Zoonotic
Gram-Positive Pathogen



Introduction & Epidemiology

A widespread, zoonotic pathogen affecting animals and humans, characterized by specific occupational risks and intrinsic antibiotic resistance.

RESERVOIR & TRANSMISSION



A widespread, zoonotic pathogen affecting animals and humans, etc.

GLOBAL DISTRIBUTION

Global distribution is prevalent in the community and endemic from global America.

OCCUPATIONAL EXPOSURE



- Fishermen
- Butchers
- Veterinarians

PRINCIPAL RESERVOIR: SWINE

Principal reservoirs: swine, swine, swine occupational and characteris.

GLOBAL DISTRIBUTION

Global distribution is through animals, poultry and rewards for the system.

PRINCIPAL RESERVOIR: SWINE

Principal reservoir or risks and intrinsic antibiotic resistance.

HUMAN CLINICAL SPECTRUM

LOCALIZED ERYSIPELOID (Cutaneous)

INTRINSIC RESISTANCE

- Glycopeptides i resistance to glycopeptides

EMPIRIC THERAPY IMPLICATIONS

- Empiric implications

INVASIVE DISEASE (Endocarditis, Bacteremia)

Taxonomy & Microbiology

Erysipelothrix Classification

- Family: Erysipelotrichaceae
- Genus: *Erysipelothrix*
- Key Species: *E. rhusiopathiae* (best characterized pathogen), *E. tonsillarum*

Key Microbiological Features

- Slender, pleomorphic, non-sporulating, Gram-positive rods
- Facultative anaerobes
- Small alpha-hemolytic colonies after 24-48h on blood agar
- Catalase-negative
- H₂S-positive on triple sugar iron agar
- Non-motile
- Esculin hydrolysis negative

Virulence Factors: Under study; likely include capsule and macrophage survival.



Clinical Features: Overview

Risk Group Matrix

Primary Occupational Risk Groups

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Human-Animal Interface

Butchers

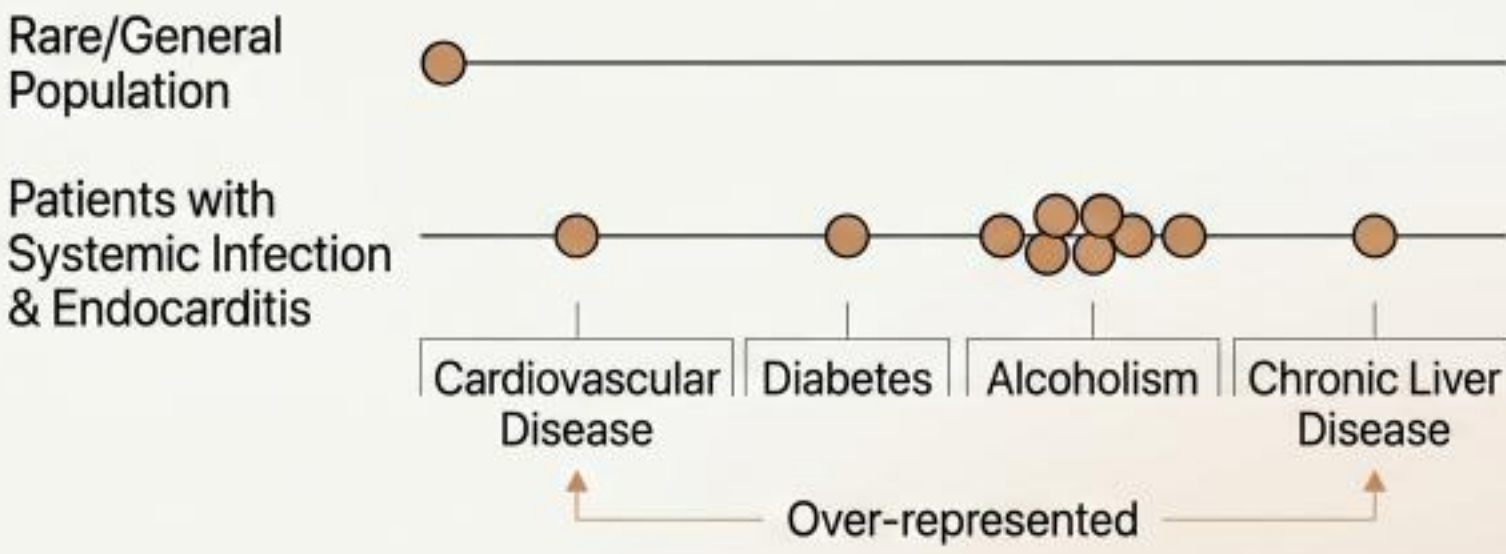
Abattoir Workers

Farmers (Pig/Poultry)

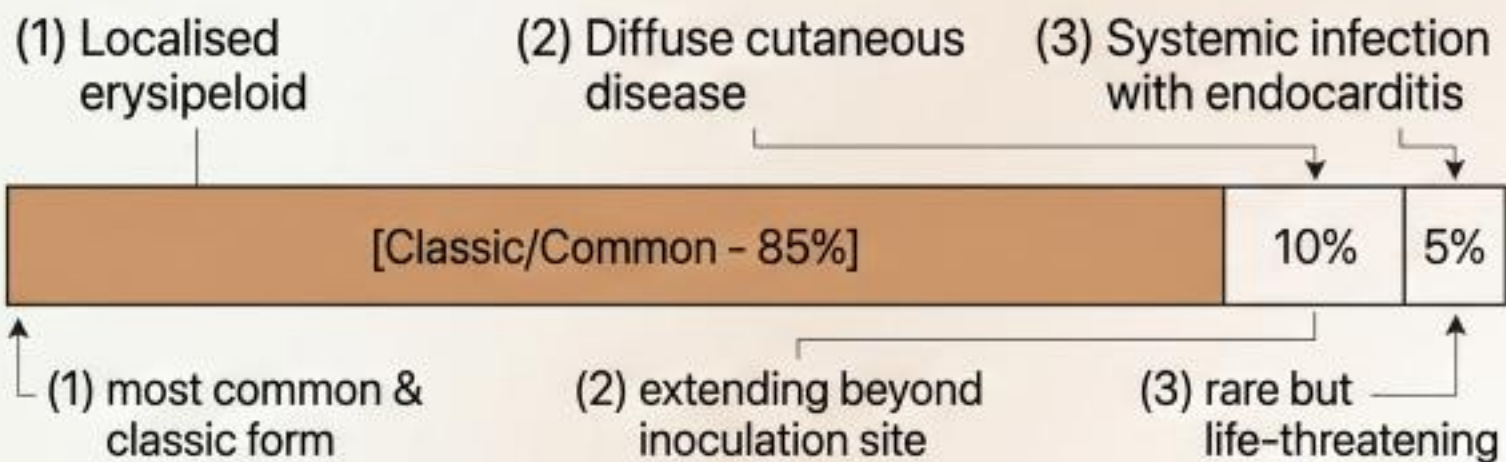
Fish Handlers

Veterinarians

Systemic Comorbidity Scale



Clinical Spectrum Distribution



Erysipeloid of Rosenbach

A Clinical Profile of the Most Common Presentation

Clinical Presentation

- Fingers, hands, or exposed skin
- site of minor trauma
- 1-7 days post-exposure
- Self-limiting, 2-4 weeks

Well-demarcated, violaceous, non-suppurative plaque with raised borders and burning pain.



Raised Border

Key Differentiating Features

Key Differentiating Features

- Violaceous color (classic)
- Lack of suppuration
- Significant burning or throbbing pain

Common Transmission Routes

- Handling animals or fish

Diffuse Cutaneous Disease & Systemic Infection

A clinical progression from generalized skin involvement to critical bacteremic infection.



Pathological Progression

Diffuse Cutaneous Disease

- Rarer form of skin disease
- Spreads beyond inoculation site
- Erythematous or violaceous plaques
- Bullae may be present
- Systemic symptoms: fever, malaise, arthralgia

Systemic Infection

- Presents with bacteremia
- Severe sepsis risk
- Infective Endocarditis (high incidence)
- Predilection for the Aortic Valve

Refined list
& simme



Pathological Progression



E. rhusiopathiae
Inoculation



Diffuse Cutaneous
Disease



Systemic
Infection

Clinical Outlook

Complications
Heart Failure (80%)
Mortality (40%)

Diagnosis

Suspected *Erysipelothrix* infection requires targeted sampling. A deep, full-thickness lesion biopsy is essential, as the bacteria are concentrated in the deeper tissue layers. Blood culture is indicated for systemic illness, with positive cases warranting echocardiography for endocarditis. Standard aerobic media, like blood agar, will support slow growth. Blackening of the butt on triple sugar iron agar, indicating H₂S production, is a definitive diagnostic clue.

Laboratory Identification

- Catalase-negative
- Non-motile
- Non-motile
- H₂S production
- H₂S production



- Appropriate Sample Collection
- Deep Lesion Biopsy
- Slow Growth & H₂S Clue

Laboratory Identification

Refined text blocks the core points, and clear treat nonn points.

Phenotypic tests Catalase-negative H₂S-positive

MALDI-TOF MS provides rapid species identification.

Key Differentiation

<i>Arcanobacterium</i>	Catalase-positive	Catalase-negative
<i>Listeria</i>	Beta-hemolytic	Alpha-hemolytic
<i>Erysipelothrix</i>	Motile	Non-motile

Laboratory Identification



The Vancomycin Resistance Paradox

Clinical Implications of Intrinsic Resistance in *Erysipelothrix rhusiopathiae*

Antimicrobial	Intrinsic Resistance Profile	
	<i>Erysipelothrix</i>	Most Gram-positive Bacteria
Glycopeptides • Vancomycin • Teicoplanin	●	—
Daptomycin	●	—
Trimethoprim-sulfamethoxazole	●	—
Gentamicin	●	—
Netilmicin	●	—



Macro form custom geometric resistance sphere



Data labels

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CRITICAL CLINICAL IMPLICATION: Vancomycin, typically a first-line empiric therapy, will be ineffective. Early recognition and careful antimicrobial selection are essential.

Antimicrobial Susceptibility Profile

Susceptibility Categories

Highly Susceptible (Cornerstone)			
Highly Susceptible (Cornerstone)	Intermediately Resistant (Some Resistance)	Intrinsically Resistant Empirically	
Susceptibility Categories			
 Penicillins & Carbapenems	 Other Agents	Intermediately Resistant (Some Resistance)	Intrinsically Resistant (Do Not Use Empirically)
Penicillin	Piperacillin	Erythromycin	Vancomycin
Imipenem	Cefotaxime	Tetracycline	Teicoplanin
	Ciprofloxacin	Chloramphenicol	Daptomycin
	Pefloxacin		Trimethoprim-sulfamethoxazole
	Clindamycin		Gentamicin
			Netilmicin

BETA-LACTAM AGENTS:
The cornerstone of therapy.

AVOID VANCOMYCIN-BASED REGIMENS in at-risk patients (intrinsic resistance).



Treatment Guidelines

Oral Antibiotic Therapy

- For localized erysipeloid without syocalized erysipelot without systemic symptoms.
- Recommended first-line: Oral penicillin V or amoxicillin V or amoxicillin (7-10 days).
- Alternatives for penicillin allergy: Cepcili for penicillin allergy: Cephalosporins, clindamycin, or fluoroquinolones.
- Treatment reduces symptoms and the Treatment reduces symptoms and potential for progression.

Parenteral & Targeted Therapy



1. **Diffuse or Systemic Disease:** Requires IV therapy (Penicillin G or Ceftriaxone).



2. **Advanced Infections:** Endocarditis and osteo-articular, 4-6 weeks bactericidal beta-lactam therapy. Surgical intervention as needed.



3. **Empiric Regimen**
Consideration: Given intrinsic vancomycin and daptomycin resistance, include beta-lactam until organism exclusion.

Key Takeaways

- Zoonotic pathogen from animal/fish exposure.
- Classic Erysipeloid: Violaceous, non-suppurative plaque.
- Systemic infection rare but severe (High mortality, linked to endocarditis).
- **Critical Pearl: Intrinsic Vancomycin & Daptomycin resistance.**
- Penicillin is treatment of choice.
- Diagnosis: Deep biopsy, blood culture, or MALDI-TOF MS.



CONSIDER BETA-LACTAM THERAPY