

# Erysipelothrix rhusiopathiae bloodstream infection – A 22-Year Experience at Mayo Clinic, Minnesota and Review of Literature

Jasmine R. Marcelin MD<sup>1</sup>, Eugene M. Tan MD<sup>1</sup>, Naima Adeel MB BCh<sup>2</sup>, Roshan J. Lewis MD<sup>2</sup>, Mark J.ENZLER MD<sup>1</sup>, Pritish K. Tosh MD<sup>1</sup>

<sup>1</sup>Division of Infectious Diseases, Mayo Clinic, Rochester MN . <sup>2</sup>Department of Internal Medicine, UnityPoint Health, University of Iowa

## Background

### E. rhusiopathiae microbiology<sup>1,2</sup>

Nonmotile, non-spore-forming, facultatively anaerobic gram-positive bacillus  
Ubiquitous among animals and fish

### Transmission<sup>3</sup>

Direct cutaneous contact through cuts or abrasions

### Risk factors<sup>1,2,4</sup>

Occupational exposure (butchers, fishmongers)  
Immunocompromised patients

### Clinical Presentation<sup>5</sup>

Erysipeloid (a localized cutaneous eruption)

Generalized cutaneous infection

Invasive: sepsis, BSI, septic arthritis, endocarditis

### Treatment<sup>3,6-8</sup>

\*Penicillin is the drug of choice

\*Alternatively may use other beta lactams, quinolones, clindamycin

\*Intrinsically resistant to vancomycin, Bactrim, aminoglycosides

\*IV regimens preferred for invasive infection

## Methods – Case Series & Literature Review

**Case Series** : Single-center retrospective review of adult patients, blood cultures positive for *E. rhusiopathiae* between 1/1/1994 to 6/20/2016 at Mayo Clinic Rochester.

**Case ascertainment**: Electronic query of microbiology results during designated timeframe cross-referenced with clinical documentation for *Erysipelothrix spp* grown from >1 blood culture set.

**Exclusion**: Patients <18 years, lack of research consent, *E. rhusiopathiae* infection without BSI.

**Variables**: Demographics, *E. rhusiopathiae* BSI, antimicrobial susceptibilities, presence of IE, medical comorbidities, ICU admission, clinical outcomes, duration/type of antibiotics

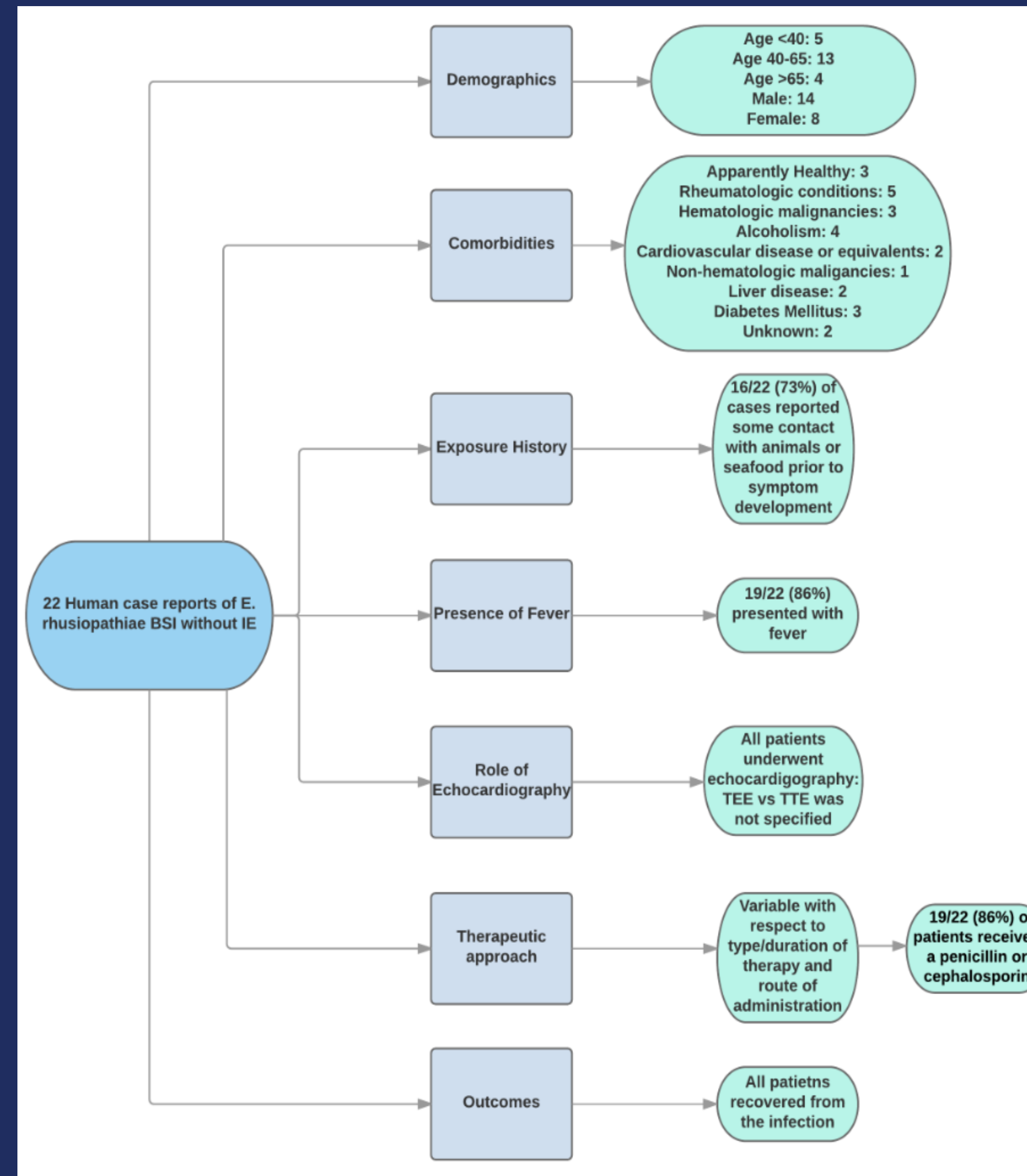
**Comprehensive historical and contemporary literature review** : PubMed search MeSH terms: erysipelothrax AND bacteremia AND endocarditis AND human)

Yielded 22 human cases of *E. rhusiopathiae* BSI

Table 1: Demographic, clinical, and microbiological characteristics and clinical outcomes of the 5 cases with *E. rhusiopathiae* BSI

Variables	Case 1	Case 2	Case 3	Case 4	Case 5
<b>Age (years)</b>	74	91	58	72	57
<b>Sex</b>	Male	Male	Female	Male	Male
<b>Race</b>	Caucasian	Caucasian	Cambodian	African-American	Caucasian
<b>Diabetes</b>	Yes	No	No	No	No
<b>Hypertension</b>	Yes	Yes	Yes	No	No
<b>Hyperlipidemia</b>	Yes	Yes	Yes	No	Yes
<b>CAD<sup>a</sup></b>	No	Yes	Yes	No	Yes
<b>CKD<sup>b</sup></b>	No	Yes	Yes	No	No
<b>Immunocompromised</b>	No	No	Yes	Yes	Yes
<b>High-grade BSI<sup>c</sup></b>	Yes	Yes	Yes	Yes	Yes
<b>Fever present</b>	No	Yes	Yes	Yes	Yes
<b>Sepsis on admission</b>	Yes	Yes	Yes	No	Yes
<b>Source of BSI</b>	Cutaneous	Synovium	Cutaneous	Unknown	Cutaneous
<b>IE<sup>d</sup></b>	No	No	No	Yes	No
<b>Penicillin susceptible</b>	Yes	Yes	Yes	Yes	Yes
<b>Antimicrobials administered</b>	IV Zosyn then IV Pen G	IV Pen G, then IV ceftriaxone	IV ceftriaxone then PO Cipro	IV amp/mero. Then IV Pen G. Then IV ceftriaxone	IV Vanco, Zosyn, Levo. Then IV ceftriaxone
<b>Abx Duration (weeks)</b>	6	6	4	6	4
<b>ICU<sup>e</sup> stay (days)</b>	5	0	0	1	0
<b>hospitalization (days)</b>	16	8	7	34	6
<b>Outcome of infection</b>	Recovered	Recovered	Recovered	Recovered	Recovered

Figure 1: Summary of prior case reports of *E. rhusiopathiae* BSI without Infective Endocarditis. Literature search included all languages



## Discussion

**Limitations**: Small sample size (rare disease, but also low culture yield, misidentification)

**Strengths**: First and largest comprehensive review describing the characteristics, antimicrobial susceptibility testing, or treatment patterns for *E. rhusiopathiae* BSI without evidence of IE.

## Conclusions

- E. rhusiopathiae* can cause invasive BSI even in the absence of IE
- Suspect *E. rhusiopathiae* in patients with gram-positive bacilli in blood cultures and relevant risk factors.**
- Contrary to estimates based entirely on case reports, **we identified IE in only 20% of our *E. rhusiopathiae* BSI cases.**
- Previously reported 90% association between BSI and IE may be overestimated due to reporting bias.

## References

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