

Relevance of *Actinomyces* Bacteremia

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Introduction

- Actinomyces* species are Gram-positive anaerobic bacilli colonizing the human oropharynx, gastrointestinal tract, and urogenital tract associated with a wide range of infections.¹
- The isolation of *Actinomyces* spp. from sterile clinical samples is regarded significant.
- We reviewed the risk factors, clinical features, and outcomes in patients with *Actinomyces* bacteremia.

Methods

- We conducted a retrospective study of all inpatients with *Actinomyces* bacteremia from two tertiary care centers from January 2006 to September 2019.
- Data were collected on demographic and clinical characteristics, comorbidities, primary source of infection, treatment received and duration of therapy and outcomes.
- Actinomyces* true bacteremia was defined as bacteremia with systemic manifestations of infection. Transient/contamination was considered without systemic manifestations.

Results

- A total of 82 cases of positive blood cultures were identified (Figure).
- 33 were true bacteremia, based on clinical criteria among 19 females and 14 males ranging from 19-93 years (63.8 ±19.5, mean ± SD).
- Majority of patients were blacks/African American (70%).
- Clinical risk factors predominantly were diabetes mellitus (21%), chronic renal failure (18%) and active malignancy (12%).
- Majority of blood cultures were positive within 48 hrs. of admission (84.8%).
- Skin and soft tissue (27%) was the most common source (Figure).
- In 27 (81%) cases, bacteremia was isolated to species level (Table).
- The infectious diseases service was consulted in 20 (60.6%) cases of true bacteremia.
- Duration of antibiotics ranged between 0-84 days (17.6 ± 20.7).
- All-cause mortality during hospitalization was 8(24%).

Figure: *Actinomyces* bacteremia cases with source

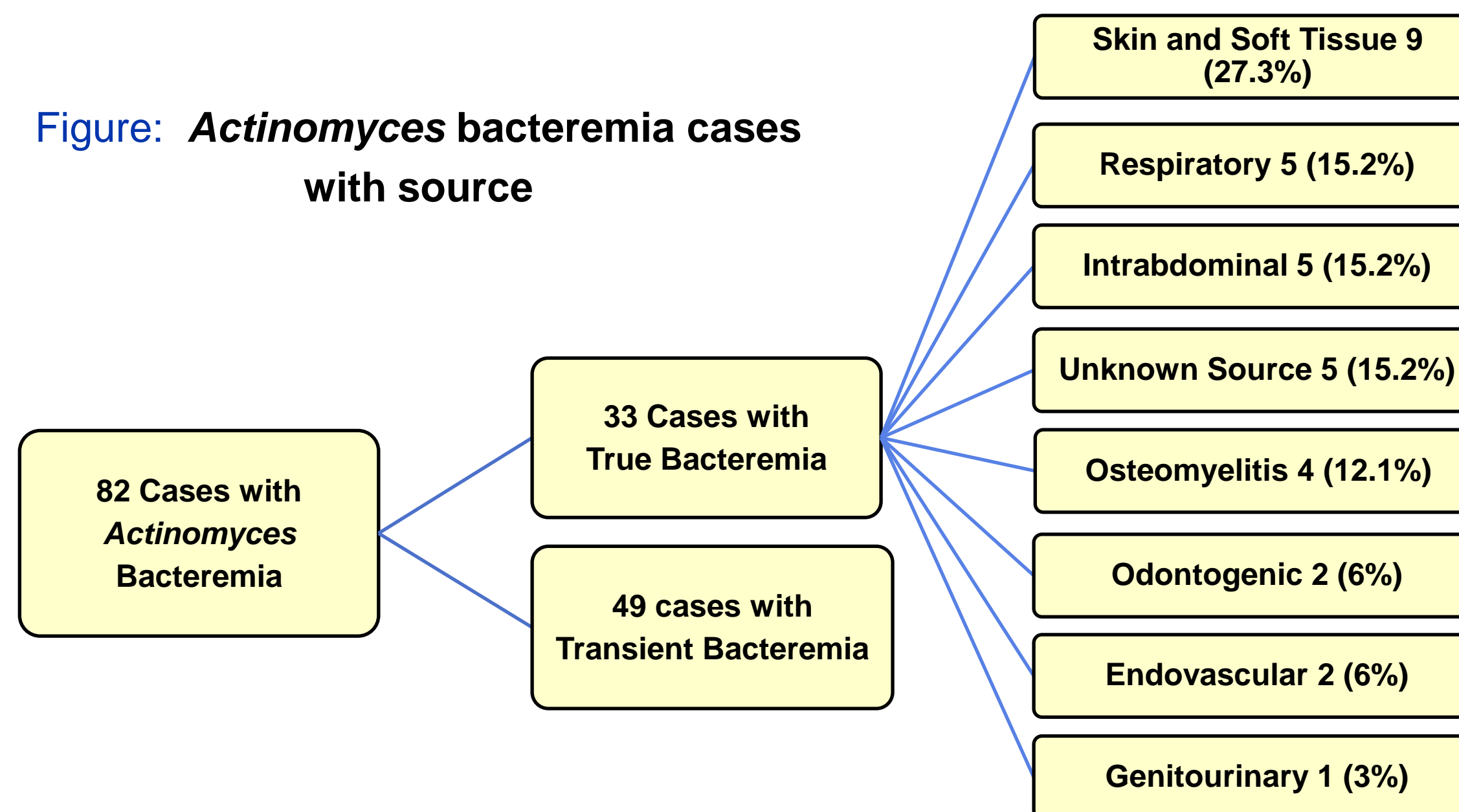


Table: *Actinomyces* Species isolated by cases

Species	Total Cases	True Bacteremia	Transient Bacteremia
	n=82 (%)	n=33 (%)	n=49 (%)
<i>Actinomyces odontolyticus</i>	29 (35.4)	7 (21.2)	22 (45)
<i>Actinomyces israelii</i>	16 (19.5)	7 (21.2)	9 (18.4)
<i>Actinomyces species undifferentiated</i>	14 (17.1)	6 (18.2)	8 (16.3)
<i>Actinomyces meyeri</i>	9 (11)	8 (24.2)	1 (2)
<i>Actinomyces neuii</i>	5 (6.1)	1 (3.1)	4 (8.2)
<i>Actinomyces turicensis</i>	5 (6.1)	4(12.1)	1 (2)
<i>Actinomyces oris</i>	3 (3.6)	0	3 (6.1)
<i>Actinomyces naeslundii</i>	1(1.2)	0	1 (2)

Discussion

- The isolation of *Actinomyces* spp. from blood cultures from patients for whom there is no evidence of clinical disease raises the question of whether these organisms are blood culture contaminants or represent transient bacteremia.
- In our study 60% of patients were thought to represent transient bacteremia.
- In a prior study of 60 patients only 10 received treatment for actinomycosis without apparent complications related to actinomycosis in the untreated group.²

Limitations

- Small sample size
- Retrospective design

Conclusions

- Not all *Actinomyces* bacteremia may be relevant and can represent transient bacteremia or contamination.
- Better awareness and involvement of infectious disease service is recommended in understanding of the clinical significance.
- Further research will help to identify the true significance of these isolates.

References

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