

Primary Infectious Spondylodiscitis: A 16-Year Retrospective Analysis of Diagnosis, Treatment, and Predictors of Surgical Intervention

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INTRODUCTION:

Primary infectious spondylodiscitis (PIS) is a rare but clinically important infection of the intervertebral disc and adjacent vertebral structures, most often caused by haematogenous spread. Although most patients are treated conservatively, predictors of severe disease and the need for surgical intervention remain unclear.

AIM:

To analyse the aetiology and therapeutic management of patients with PIS treated at a tertiary referral centre between 2010 and 2025, with particular focus on factors associated with surgical treatment.

RESULTS:

Figure 1. Age and sex distribution of spondylodiscitis cases, 2010–2025.
Mean age was **66 years** and **59.7%** were **male**.

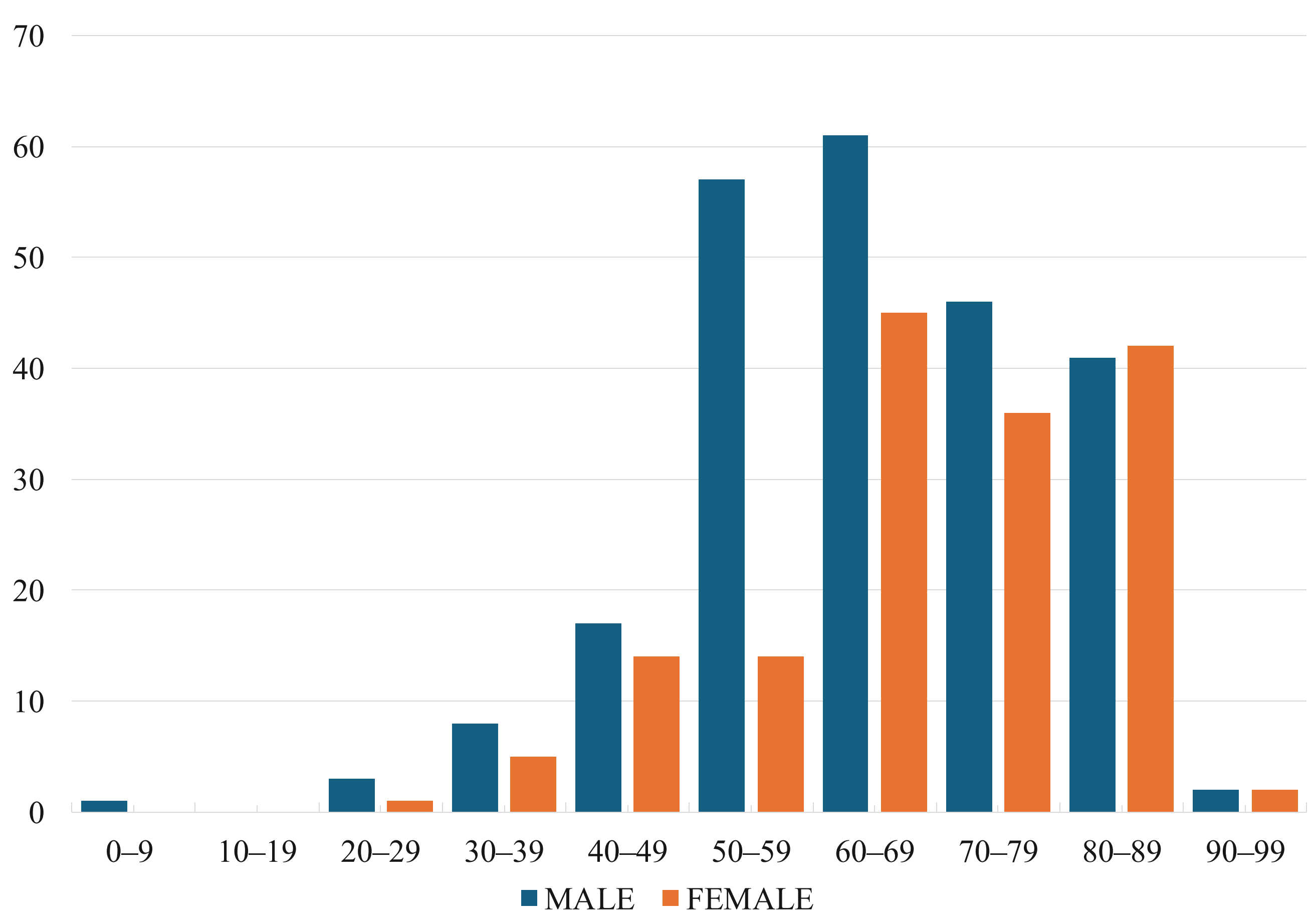


Figure 3. Comparison of patients treated conservatively and surgically

VARIABLE	CONSERVATIVELY TREATED PATIENTS	SURGICALLY TREATED PATIENTS	p- value
Number of patients (N)	314	81	/
Age, median (IQR)	68 (58–79)	64 (56–74)	p = 0.018
Sex (male/female), n (%)	M: 182 (58 %)	M: 54 (66.7 %)	p = 0.153
Neurological deficit (%)	48 (15.3 %)	53 (65.4 %)	p < 0.001
CRP at admission, median (IQR)	134 (52.8–210)	165 (82–244)	p = 0.044

CONCLUSION:

Primary infectious spondylodiscitis represents a significant clinical burden. Most patients can be treated conservatively. Surgical treatment was strongly associated with neurological deficit at presentation, younger age and higher CRP levels at admission. *Staphylococcus aureus* was the leading causative pathogen. This large retrospective analysis provides an important foundation for further research aimed at improving management and outcomes.

METHODS:

This retrospective cohort study was conducted at a tertiary referral center and included 395 patients diagnosed with PIS between 2010 and 2025. Data on demographics, C-reactive protein (CRP), microbiological findings, and treatment strategy were collected. Statistical analyses were performed using the Mann–Whitney U and χ^2 /Fisher’s exact tests, with $p < 0.05$ considered statistically significant.

Figure 2. Microbiological pathogens in patients with primary infectious spondylodiscitis. (N = 314, identified with blood culture and/or biopsy
A pathogen was identified in **79.5%** of cases; most commonly *Staphylococcus aureus* (**45.5%**).

Microorganism group	Pathogen	n (%)
Gram – positive bacteria	<i>Staphylococcus aureus</i>	142 (45.5 %)
	Coagulase – negative staphylococci (CoNS) ¹	17 (5.4 %)
	Streptococci	54 (17.3 %)
	Enterococci	14 (4.5 %)
	Other	7 (2.2 %)
	TOTAL:	234 (74.8 %)
Gram – negative bacteria	Enterobacteriaceae ²	36 (11.5 %)
	HACEK ³	4 (1.3 %)
	Other	5 (1.6 %)
	TOTAL:	45 (14.4 %)
Anaerobes	<i>Fusobacterium</i> spp., <i>Parvimonas</i> spp., <i>Finegoldia magna</i> , <i>Actinomyces</i> spp.	11 (3.5 %)
Mycobacteria	<i>Mycobacterium tuberculosis</i>	2 (0.6 %)
Fungi	<i>Candida parapsilosis</i>	1 (0.3 %)
Polymicrobial infections		20 (6.4 %)

¹ *S. epidermidis*, *S. warneri*, *S. hominis* and *S. lugdunensis*;
² *E. coli*, *K. pneumoniae*, *S. enteritidis* and *C. koseri*;
³ *Haemophilus parainfluenzae*, *Aggregatibacter aphrophilus* and *Kingella kingae*.