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 $\label{thm:linear} Prevalence \ and \ Outcomes \ of \ Unexpected \ Positive \ Intraoperative \ Cultures \ in \ Presumed \ Aseptic \ Revision \ Hip \ Arthroplasty$

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Outcome Data for Revisions with 1 UPC vo	ersus ≥2 UPC		
Variable	1 UPC (n = 74)	≥2 UPC (n = 35)	P value
Age (years)*	73.0 (63.8 to 82.0)	69.0 (59 to 80)	0.185a
Sex, F/M, n (%)	39/35 (52.7/47.3)	15/20 (42.9/57.1)	0.337 ^b
BMI (kg/m ²)*	28.1 (24.8 to 33.7)	30.0 (25.1 to 33.2)	0.664 ^a
ASA classification, n (%)	20.1 (24.0 to 33.7)	30.0 (23.1 to 33.2)	0.571°
1	0	0	0.571
2	15 (20.3)	10 (28.6)	
3	47 (63.5)	19 (54.3)	
4	12 (16.2)	6 (17.1)	
Diabetes, n (%)	22 (29.7)	6 (17.1)	0.160^{b}
Inflammatory condition, n (%)	12 (16.2)	2 (5.7)	0.100 0.218°
	12 (10.2)	2 (3.7)	0.218 0.917 ^b
Etiology for primary THA, n (%) Osteoarthritis	50 (60 7)	21 (60 6)	0.91/
Osteoartnritis	50 (60.7)	24 (68.6)	
	24 (39.3)	11 (31.4)	0.940°
Reasons for revision, n (%)	22 (42.2)	16 (45 7)	0.940°
Aseptic loosening	32 (43.2)	16 (45.7)	
Instability	10 (13.5)	6 (17.1)	
Polyethylene wear +/- osteolysis	15 (20.3)	7 (20.0)	
Periprosthetic fracture	10 (13.5)	3 (8.6)	
Adverse metal reaction	6 (8.1)	2 (5.7)	
Other	1 (1.4)	1 (2.9)	1
History of previous THA revision in study oint, n (%)	20 (27.0)	14 (40.0)	0.172 ^b
Age of prosthesis (years)*	9.0 (2.1 to 17.0)	9.0 (3.6 to 22)	0.393^{a}
History of PJI in study joint, n (%)	3 (4.1)	2 (5.7)	0.655^{c}
Pre-operative serum CRP > 10mg/L, n (%)	14 (18.9)	6 (17.1)	0.828^{b}
Pre-operative serum ESR > 30mm/h, n (%)	16 (21.6)	5 (14.3)	0.348^{b}
Preoperative joint aspirate, n (%)	13 (17.6)	10 (28.6)	0.189^{b}
Type of revision, n (%)	- ()	- ()	0.551 ^b
Modular exchange	24 (32.4)	12 (34.3)	
1-component	44 (59.5)	18 (51.4)	
2-component	6 (8.1)	5 (14.3)	
Number of samples taken in study	3.0 (3.0 to 5.0)	4.0 (3.0 to 5.0)	0.056^{a}
revision*	2.0 (2.0 to 5.0)	(2.0 to 2.0)	0.020
Swab used for culture in revision, n (%)	51 (68.9)	21 (60.0)	0.359 ^b
Fluid used for culture in revision, n (%)	9 (12.2)	7 (20.0)	$0.280^{\rm b}$
Γissue used for culture in revision, n (%)	64 (86.5)	29 (82.9)	0.230 0.617 ^b
JPC broth or solid, n (%)	OT (00.3)	27 (02.7)	0.837 ^b
Broth	27 (36.5)	35 (38.0)	0.037
Solid	47 (63.5)	57 (62.0)	
Solid Microorganisms, n (%)†	+/ (03.3)	37 (02.0)	0.002°
	35 (46.1)	20 (20 0)	0.002
C. acnes		29 (30.9)	
MRSE	3 (3.9)	19 (20.2)	
MSSE	7 (9.2)	9 (9.6)	
Other CNS	12 (15.8)	7 (7.4)	
Micrococcus sp	2 (2.6)	6 (6.4)	
MSSA	0	4 (4.2)	
Streptococcus sp	5 (6.6)	4 (4.2)	
Enterococcus sp	1 (1.3)	4 (4.2)	
Corynebacterium sp	1 (1.3)	4 (4.2)	

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PREVALENCE AND OUTCOMES OF UNEXPECTED POSITIVE INTRAOPERATIVE CULTURES IN PRESUMED ASEPTIC REVISION HIP ARTHROPLASTY

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Pseudomonas aeruginosa	0	3 (3.2)	
Others	10 (13.2)	5 (5.3)	
Number of revisions resistant UPC, n (%)	3 (4.1)	10 (28.6)	0.001^{c}
Antibiotic treatment of UPC, n (%)	15 (20.3)	26 (74.3)	0.000^{b}
Antibiotic route, n (%)			0.258^{c}
Oral alone	6 (40)	4 (15.4)	
IV alone	3 (20)	6 (23.1)	
Combined IV and oral	6 (40)	16 (61.5)	
Antibiotic duration, n (%)			0.096^{c}
≤6 weeks	11 (73.3)	8 (30.8)	
>6 weeks to 3 months	1 (6.7)	3 (11.5)	
>3 months to 6 months	2 (13.3)	5 (19.2)	
>6 months to 1 year	0	2 (7.7)	
Chronic/lifelong suppression	1 (6.7)	8 (30.8)	
Subsequent aseptic revision, n (%)‡	8 (10.8)	1 (2.9)	0.267^{c}
Subsequent PJI, n (%)	8 (10.8)	3 (8.6)	1.000^{c}
Time to subsequent PJI (years)*	1.0 (0.1 to 3.1)	0.58 (0.1 to 1.1)	0.766^{a}
Subsequent PJI microorganism, n (%)			0.024^{c}
Same as UPC microorganism	1 (12.5)	3 (100)	
Different than UPC microorganism	6 (75.0)	0	
Mixed	1 (12.5)	0	

^{*}Values are median (interquartile ranges). †Reported as microorganism(s) grown from each intraoperative specimen that was positive (UPC). ‡Subsequent aseptic revision after the study revision, censored out of survival analysis once occurs as subsequent PJI could be caused by subsequent aseptic revision. aWilcoxon's rank-sum test. bPearson's chi-squared test. cFisher's exact test. UPC, unexpected positive intraoperative cultures; F, female; M, male; BMI, body mass index; ASA, American society of anesthesiologists; THA, total hip arthroplasty; PJI, periprosthetic joint infection; CRP, c-reactive protein; ESR, erythrocyte sedimentation rate; C. acnes, Cutibacterium acnes; MRSE, methicillin-resistant Staphylococcus epidermidis; MSSE, methicillin-sensitive Staphylococcus epidermidis; CNS, coagulase-negative Staphylococcus species; sp, species; MSSA, methicillin-sensitive Staphylococcus aureus; IV, intravenous.