

Introduction

- Septic arthritis (SA) is a common and serious infection in children that requires prompt diagnosis and treatment.
- Staphylococcus aureus* has been the most common pathogen identified
- Kingella kingae* has been recognized as an increasingly important cause of SA, especially in children < 4yrs of age in Europe, Israel and recently, in a few reports in the U.S.

Objectives

- To describe the frequency and characteristics of Kingella SA (KSA) in children in NYC hospitals

Study Design

- Retrospective laboratory and chart review of all cases of SA in children admitted to Hospital of Joint Disease, Tisch and Bellevue Hospitals from January 2013 to December 2015.
- Groups compared using non-parametric tests, $p < 0.05$

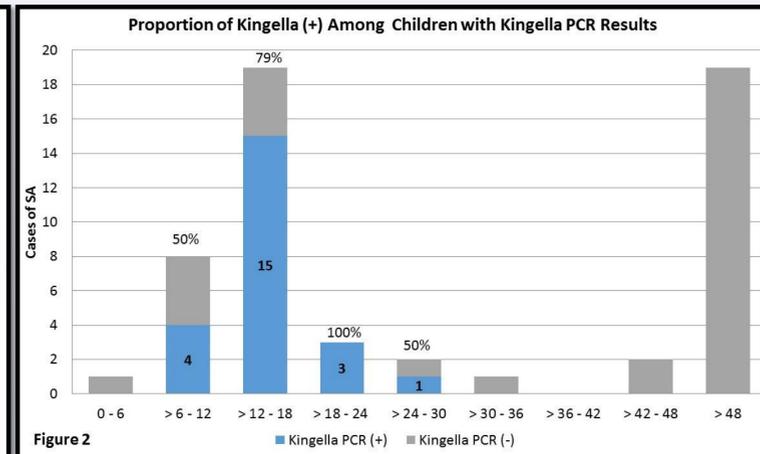
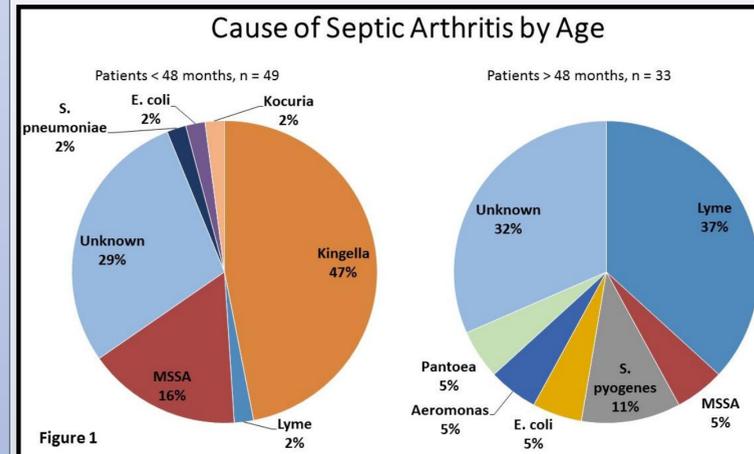
Results

Demographics of Septic Arthritis

- A total of 82 children, ages 1-212 months, were admitted with a diagnosis of SA. Median age = 2 yr

Table 1	Diagnosis			Total	P value
	Kingella	Non-Kingella SA	Unknown		
Age	< 4 years	23	12	49	0.001
	> 4 years	0	23	33	
Gender	Male	11	20	43	0.35
	Female	12	15	39	

Results cont'd



Etiology of Septic Arthritis

- An etiologic agent was found in 71% of cases. Significant differences in etiology by age (Fig 1).
- Kingella was only detected by PCR

Clinical Characteristics of Kingella SA

- All Kingella positive cases were < 4 yrs old (range 9-25 mos (Table 1)). Kingella accounted for 47% of SA cases < 4yrs (Fig 1) and 81% of cases 12-24mos (Fig 2).

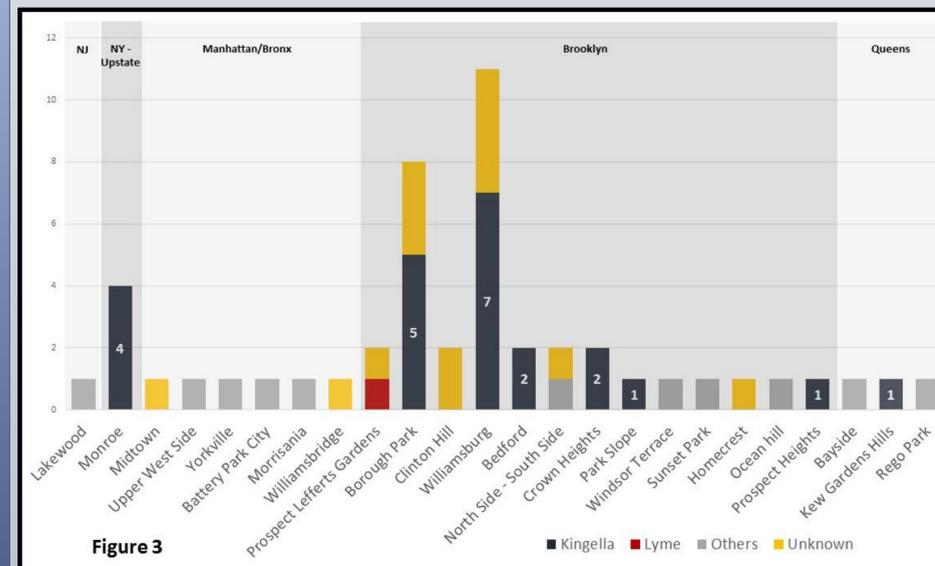


Table 2	N	Kingella	Non-Kingella	P value
Fever	Range	100.4-104	101-105	0.654
	Median	101.55	102	
URI Symptoms	Range	16/23	15/35	0.062
	Median	10/23	4/35	
Duration of Symptoms	Range	1-21	1-14	0.853
	Median	3	5	
Length of Stay	Range	3-7	1-120	0.484
	Median	4	5	
WBC	Range	8-27	6-26	0.387
	Median	14	14	
CRP	Range	18-85	1-267	0.060
	Median	41	66	
Joint WBC	Range	48,500-420,800	181-300,920	0.495
	Median	113,719	108,000	
Joint Neutrophil	Range	73-95	43-96	0.596
	Median	90.5	94	
Osteomyelitis		5/23	11/35	0.552

- Almost all cases of KSA occurred in children from predominantly Jewish neighborhoods (Fig 3); 20/27 vs 3/22 ($p = 0.0001$, Fisher's exact).
- 77% (20/26) of infants < 2 yrs old whose parents self-identified as Jewish had SA caused by Kingella.
- KSA was more likely to occur in Jewish than non-Jewish children < 4yrs of age: 21/26 vs 1/6, $p = 0.006$

Results cont'd

- Similar clinical presentation except for history of preceding URI symptoms in most Kingella SA patients (Table 2).
- No difference in joint fluid WBC/differential, CRP or incidence of osteomyelitis were seen between Kingella (+) and Kingella (-) patients (Table 2).
- All patients with long term follow-up (20/23), had resolution of symptoms without sequelae.

Conclusion

- Kingella* was the most common cause of SA in children < 4 years of age in our population.
- Diagnosis was made exclusively by PCR.
- No distinguishing clinical or laboratory features of Kingella vs other bacterial causes except preceding URI more often with Kingella.
- Clinical course of KSA was usually mild and long-term outcome was excellent.
- Clustering of cases of KSA in predominantly Jewish neighborhoods explained by the higher occurrence observed in Jewish children with SA.
- More research is necessary to understand the epidemiology and carriage rate of *Kingella* in this pediatric population and the factors affecting the higher occurrence in Jewish infants.
- Differences in rates of KSA in different groups may help explain variability in frequency of KSA reported in studies in the U.S.

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