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Streptococcal Tonsillitis/Pharyngitis In Young Children

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ABSTRACT

Pharyngitis is common in children, accounting for nearly 12 million visits annually in the India . Streptococcus pyogenes or group A streptococcus (GAS) is the most common bacterial cause of pharyngitis for which antibiotics are indicated. Antibiotic treatment of streptococcal pharyngitis virtually eliminates the presence of bacteria from the pharynx and thus removes the risk of subsequent rheumatic fever. GAS is spread from person to person via respiratory droplets with a short incubation period of 2w5 days. GAS pharyngitis peaks in the late winter and early spring months when children are predominately indoors for school and sports. Colonization is also higher in winter months, and while up to 20% of school age children are colonized with GAS in their throat during this time, colonization has not been shown to contribute to the spread of disease. In low- and middle-income countries and other situations in which crowding is common (e.g., schools), outbreaks of pharyngitis are common. GAS pharyngitis can occur at all ages and it is most common in school-aged children with a peak at 7w8 years of age. Pharyngitis caused by GAS is rare in children <3 years of age and becomes much less common in late adolescence through adulthood.

Keywords: diffuse adhering E. coli , pharyngitis , children , diarrhoea.

INTRODUCTION

Pharyngitis is common in children, accounting for nearly 12 million visits annually in India.[1] Streptococcus pyogenes or group A streptococcus (GAS) is the most common bacterial cause of pharyngitis for which antibiotics are indicated. There are more than 240 known M protein types encoded by the emm gene and conferring a specific type. Specific types have long been

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associated with sequelae such as rheumatic fever (e.g. type 1) and acute glomerulonephritis (e.g., type 12).[2-4] Antibiotic treatment of streptococcal pharyngitis virtually eliminates the presence of bacteria from the pharynx and thus removes the risk of subsequent rheumatic fever. GAS is spread from person to person via respiratory droplets with a short incubation period of 2w5 days. GAS pharyngitis peaks in the late winter and early spring months when children are pre dominately indoors for school and sports. Colonization is also higher in winter months, and while up to 20% of school age children are colonized with GAS in their throat during this time, colonization has not been shown to contribute to the spread of disease.[5-7] In low- and middle-income countries and other situations in which crowding is common (e.g., schools), outbreaks of pharyngitis are common.[8] GAS pharyngitis can occur at all ages and it is most common in school-aged children with a peak at 7w8 years of age. Pharyngitis caused by GAS is rare in children <3 years of age and becomes much less common in late adolescence through adulthood.[9-10]

Clinical presentation

The classic presentation of GAS pharyngitis includes sudden onset of fever and sore throat with inflammation of the tonsils noted on exam in the absence of viral respiratory features.9 Tender anterior cervical lymphadenopathy is often present. Palatal petechiae, strawberry tongue, red swollen uvula, or scarlatiniform rash may also be present. However, overlap with other clinical diagnoses exists (e.g., viral pharyngitis and Kawasaki Disease) and none of these are pathognomonic for GAS pharyngitis. Other clinical features include headache, myalgias, vomiting, and abdominal pain.Separating out children who may be colonized with GAS in their pharynx from those with GAS pharyngitis can be difficult. It is recommended that streptococcal testing be avoided in children with clinical features of a viral infection such as cough, rhinorrhea, congestion, hoarse voice, diarrhea,conjunctivitis, coryza, or oral ulcers.[9-11] Recent data from Shapiro and colleagues supports this recommendation. They found that children with viral features, especially rhinorrhea,were less likely to have a positive streptococcal antigen test.Additionally, the likelihood of a positive antigen test result declined as the number of viral features increased.[11]

Typical clinical presentations of GAS tonsillitis are rare in children <3 years of age. In young children, GAS infection generally has more of a subacute presentation with low grade fever, fussiness, anorexia, congestion, mucopurulent rhinorrhea, and anterior lymphadenopathy.[12-13]

Peritonsillar abscess

Peritonsillar abscess (PTA) is a collection of purulence between the tonsillar capsule and the pharyngeal constrictor muscle. PTA presents similarly to streptococcal pharyngitis, although additional clinical symptoms of dysphagia, odynophagia, drooling, muffled voice, and trismus may be present.

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On exam, an apparent bulging tonsil may be seen causing deviation of the uvula away from the abscess.[14] Younger children may be less likely to present with sore throat and may have noted neck swelling and tenderness on exam.[15]

Suppurative and non-suppurative sequelae

Children with a missed diagnosis of GAS tonsillitis are at increased risk of developing suppurative complications such as otitis media, sinusitis, and peritonsillar abscess (PTA), and treatment has been shown to mitigate this risk in sys-tematic reviews.[16] However, the magnitude of the risk of non-treatment appears to be small. Data from Little and colleagues found that the number of GAS tonsillitis cases needed to treat (NNT) to prevent one otitis media or sinusitis complication was 193 for those prescribed antibiotics at the time of the initial visit and was 174 in those who received a delayed antibiotic prescription.[17] PTA is a less frequent sequelae of GAS tonsillitis than otitis media and sinusitis with an annual incidence of 9.4 per 100 000 children under 20 years of age. It is most common in adolescents with a peak age of 13 years.[18] Similar to otitis media and sinusitis, newer observational data suggests that immediate antibiotics are not better than either delayed or no antibiotics in preventing PTA, indicating that early evidence of peritonsillar abscess may be present at the initial clinical presentation.[19] The risk of adverse events from antibiotic exposure has been found to be much higher than the risk of otitis media, sinusitis, and PTA following a missed GAS pharyngitis. A recent Cochrane review found that the risk of vomiting, diarrhea, or rash was higher for children treated with antibiotics than those who were not treated with a relative risk of 1.38 (95%CI 1.19 to 1.59) and the NNT to cause a harmful outcome was 14.[20]

Acute rheumatic fever (ARF) occurs primarily in untreated school-aged children aged 5w14 years with antecedent history of untreated tonsillitis.[21] There are rare cases of ARF in young children aged 2w3 years in high-risk populations.[22]

The Jones criteria for diagnosis of ARF was revised in 2015 to better discern those at low-risk from those at moderate- or high-risk of ARF.[21] This revision maintains major and minor criteria, but these differ for low-risk and moderate-to high- risk populations. The changes to the diagnostic criteria were an important update as ARF is rare in industrialized nations and is no longer a reportable disease to the Centers for Disease Control and Prevention (CDC).[21-23-24] However, ARF and rheumatic heart disease continue to be a major cause of morbidity in low- and middle-income countries and in certain populations, emphasizing the importance of timely diagnosis and treatment of GAS tonsillitis in these groups to improve population health.

Conclusion

Tonsillitis is a common complaint prompting medical attention and GAS as the cause of tonsillitis is a common concern among patients and parents. Most cases of tonsillitis are viral in origin and patients who meet criteria for testing should be determined by after obtaining a careful

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history, reviewing seasonal epidemiology, and considering physical exam findings. This approach aids in reducing unnecessary testing and subsequent antibiotic exposure and reduces patient and societal healthcare costs.

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