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ID CONSULT

GAS Isn't Always Strep Throat

"For your viewing pleasure ..." as Rod Serling once said, I invite you to peruse four alternative group A streptococcus presentations that might not be so obvious at first and for which the approach may be controversial:

► **Urticaria.** Hives may be due to group A streptococcus (GAS), developing even while the patient is on effective anti-GAS treatment. This appears to be an atypical host-specific response and often occurs in children who develop hives in response to other stimuli as well. Unfortunately, the literature on this is mostly anecdotal.

We recently saw a 15-year-old who developed hives 3 days into amoxicillin therapy for GAS pharyngitis. Amoxicillin was changed to azithromycin, but the urticaria intensified. After switching her to two other classes of antibiotics, we deduced that the urticaria wasn't a drug reaction, but a reaction to GAS itself.

Another scenario is the child with recurrent urticaria. Elevated antistreptolysin-O (ASO) or anti-DNase B titers or evidence of GAS in the pharynx via a rapid antigen test or throat culture are indications to try empiric GAS therapy. If the urticaria goes away and stays away, you've solved the problem.

Look for GAS if hives occur more than three times in 6 months without another known trigger, even if the child has no signs of pharyngitis. If it looks like GAS is involved, consider 3 months of prophylactic penicillin in these select patients, particularly during the winter months, when reexposure is most likely.

► **Movement disorders.** It's not very common, but if a child suddenly develops tics or obsessive-compulsive behaviors, check for GAS.

Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infection (PANDAS) was first described in the 1990's by Susan Swedo, M.D., and her colleagues at the National Institute of Mental Health based on five criteria: presence of obsessive-compulsive disorder (OCD) and/or a tic disorder; prepubertal symptom onset; episodic symptom severity; GAS association; and associated neurologic abnormalities (Am. J. Psychiatry 1998;155:264-71).

We recently saw a child with a sudden onset of tics after a febrile illness. Rheumatic fever was considered and the anti-DNase B was elevated. He did not meet the familiar modified Jones criteria. His repetitive hand movements were not really chorea and he had facial tics as well. After 10 days of penicillin, his tics went away, but some unusual facial movements remained for another month.

Six weeks after stopping penicillin, he developed OCD symptoms, which in turn disappeared after 6 weeks of amoxicillin prophylaxis. He continues symptom free on amoxicillin.

One wonders if he might have been reexposed to streptococcus after the initial penicillin; and, while he didn't subsequently develop clinical pharyngitis, GAS reacquisition may have triggered an antibody response that cross-reacted with neural tissues.

The theory that if you can prevent GAS stimulus, you may prevent neuropsychiatric symptoms is supported by a prospective study published in 2002 by Marie Lynd Murphy, M.D., and Michael Pichichero, M.D. (Arch. Pediatr. Adolesc. Med. 2002;156:356-61).

Both the diagnosis and empiric treatment of PANDAS are still controversial. It seems to me that an antibiotic trial could be justified in the face of symptoms that are quite lifestyle altering for the child and family—even if only some of the small subset with evidence of GAS improve.

However, I'm not yet ready to give intravenous immunoglobulin or order plasmapheresis without a defined investigational protocol.

► **Fever and petechiae.** We immediately think of meningococcemia in a child with fever and petechiae (and so we should), even though GAS is actually more likely. Ray Baker, M.D., and his colleagues found *Neisseria meningitides* in 13 (6.8%) of 190 children with fever and petechial rash (8/13 had meningitis), compared with GAS in 10%. No pathogen was found in 72% (Pediatrics 1989;84:1051-5).

Using these data can be tricky. I think we should consider GAS in relatively well-looking febrile children with only a few scattered petechiae and tonsillitis or pharyngitis. If a throat culture or rapid antigen test is positive, immediate hospitalization may not be necessary. Of course, hospitalization and full work-up are necessary if the child looks sick, has more than scattered petechiae or any purpura, or if meningococcus has been in the community lately.

The main clinical use of these data may be to obtain a throat culture before starting antibiotics for presumed meningococcus in the fever/petechiae case.

► **Joint pain and fever.** It seems that we are seeing more children who have fever, arthralgias and elevated sedimentation rates and C-reactive protein values, but who don't meet the Jones criteria for rheumatic fever. That doesn't mean they don't have poststreptococcal disease.

The Jones criteria for rheumatic fever, first established in 1944 and revised most recently in 1992 (JAMA 1992;268:2069-73), require evidence of antecedent GAS infection along with either two or more major criteria (carditis, polyarthritis, chorea, erythema marginatum, subcutaneous nodules), or one major criterion plus at least two minor criteria (fever, arthralgia, previous rheumatic fever or rheumatic heart disease, elevated acute phase reactants, prolonged PR interval).

This definition leaves us with a conundrum: what to do with the child who has two or more of the minor criteria but none of the major ones, particularly if the child has a single joint arthritis. These may be post-GAS syndromes. Or could the child have some other arthritis that coincidentally occurred following GAS?

Further, do these children need more than 10 days of penicillin (up to a year)? Without prophylaxis, some who initially had an autoimmune joint flare-up without classic carditis or polyarthritis may convert to full-blown rheumatic fever the next time they're exposed to GAS.

It seems reasonable to put such children on prophylaxis for 12 months, especially during the winter GAS season. If the joint symptoms recur on adequate GAS prophylaxis, you can be more confident that it's not due to GAS and therefore should be referred to a rheumatologist. If the child develops some evidence of valvular abnormality over the year of prophylaxis, then it's an atypical case of rheumatic fever. ■

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