

Retropharyngeal Cellulitis in a 5-Week-Old Infant

Florence T. Bourgeois, MD*, and Michael W. Shannon, MD, MPH‡

ABSTRACT. An infant who presents with acute, unexplained crying requires a thorough examination to identify the source of distress. We report the case of a 5-week-old infant who had sudden irritability and was found to have retropharyngeal cellulitis caused by group B *Streptococcus*. *Pediatrics* 2002;109(3). URL: <http://www.pediatrics.org/cgi/content/full/109/3/e51>; group B *Streptococcus*, retropharyngeal cellulitis, infant, irritability.

ABBREVIATION. GBS, group B streptococcal.

Crying is an infant's principle form of communication. Usually an infant's source of distress can be identified easily, and the child can be consoled with holding, feeding, or other environmental changes. If, however, the crying is particularly acute or the infant remains inconsolable, then other sources of distress must be considered. Among these, life-threatening conditions including infection, child abuse, and abdominal catastrophe must be considered first. Identifying the source of distress can be particularly challenging in young infants who do not always present with the classic signs of disease. In this report, we describe an infant who ultimately was found to have retropharyngeal cellulitis and whose sole presenting manifestation was sudden-onset irritability and inconsolability.

CASE REPORT

A 5-week-old boy presented to the emergency department with irritability and inconsolability for 1 hour. The mother reported that the infant had been in his usual state of health earlier in the day. She had breastfed him and put him down to sleep, after which he awoke crying and inconsolable. The crying was so excessive that she feared he was in pain and immediately brought him to the hospital. The child had been in the mother's care all day; there was no history of trauma to the child. He did not receive any medications, including antipyretics, before arrival. Medical and birth histories were insignificant; he was a full-term, healthy infant. The initial physical examination revealed an extremely irritable infant who was crying constantly. His temperature was 37.4°C. There was a question of decreased movement of his right arm. No hair tourniquets were detected on his digits or penis; there were no inguinal hernias. His oropharynx was clear without erythema or swelling. The remainder of his physical examination, including a fluorescein examination of the cornea, was unremarkable.

A right upper extremity radiograph was done and showed no

abnormalities. An abdominal radiograph was also unremarkable. Initial laboratory studies revealed a leukocyte count of 3900/mm³ (12% band forms, 28% segmented neutrophils, 4% monocytes, 49% lymphocytes, 1% eosinophils), a hematocrit of 37%, and a platelet count of 299 000/mm³. Urinalysis was negative.

The infant continued to be extremely irritable and refused all feeds. He could be comforted intermittently, but any repositioning distressed him. Because of the sudden onset of the child's symptoms and his unwillingness to be moved, the question of acute injury was raised and a skeletal survey was performed. While obtaining the radiographs, it was noted that the child would calm down when his neck was positioned in hyperextension. Lateral cervical spine films showed prominence of the prevertebral soft tissues, and a fluoroscopic assessment of the airway demonstrated retropharyngeal soft tissue swelling, which persisted with the neck in both flexed and extended positions. The remainder of the skeletal survey was negative.

When reevaluated 8 hours after initial presentation, the infant seemed to have increasing respiratory distress with tachypnea, as well as supraclavicular and suprasternal retractions. His temperature rose to 38.5°C. He was noted to keep his neck in hyperextension. His cry had become hoarse, and his neck and oropharynx were swollen. Contrast-enhanced computed tomography of the neck showed extensive retropharyngeal and cervical adenopathy and cellulitis. There was marked swelling of the oropharyngeal mucosa and retropharyngeal phlegmon, which extended from the level of the oropharynx into the infrahyoid neck with narrowing of the oropharyngeal airway.

Because of increasing respiratory distress, the infant was endotracheally intubated and a sepsis work-up was performed. Treatment with ampicillin-sulbactam, gentamicin, and dexamethasone was initiated. Urine culture and cerebrospinal fluid culture and Gram stain were negative. A blood culture became positive for group B *Streptococcus* after 3.17 hours of incubation. The infant was treated with a 14-day course of ampicillin. Repeat blood cultures were negative. A computed tomographic scan on the third hospital day showed improved retropharyngeal cellulitis and adenopathy, and he was extubated successfully on the fifth hospital day.

Additional investigation revealed that the mother's prenatal screens all were negative, including group B streptococcal (GBS) testing, which was performed at 36 weeks' gestation. The delivery was vaginal at 41 weeks' estimated gestational age. The amniotic fluid was heavily meconium-stained, and the infant was bulb-suctioned in the delivery room. He was immediately vigorous and did not require intubation for additional suctioning. The postnatal course was unremarkable; in particular, there was no suggestion of trauma to the retropharynx from the suctioning at delivery. The infant was discharged at 2 days of life.

DISCUSSION

Since the 1970s, GBS infection has been recognized as a major source of morbidity and mortality in the neonate and is in fact the most common cause of invasive infections in newborns.¹ The clinical presentation is described as either early- or late-onset, depending on whether the onset of disease occurs during the first week or between 7 days and 3 months of life. Early-onset disease typically occurs via vertical transmission from a mother's colonized genital tract, whereas late-onset disease is transmitted both vertically and horizontally from nosocomial and commu-

From the *Department of Medicine and ‡Division of Emergency Medicine, Children's Hospital, Harvard Medical School, Boston, Massachusetts.

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Reprint requests to (F.T.B.) Department of Medicine, Children's Hospital, 300 Longwood Ave, Boston, MA 02115. E-mail: florence.bourgeois@tch.harvard.edu

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TABLE 1. Retropharyngeal Cellulitis and Abscess in Infants Younger Than 3 Months

Age at Onset	Predisposing Factors	Organisms Isolated and Source of Isolate	Reference Number
9 d	None	Group B <i>Streptococcus</i> from blood and aspirate	10
18 d	None	Group B <i>Streptococcus</i> from blood	10
5 d	None	<i>Escherichia coli</i> from aspirate	11
2 wk	None	<i>Enterococcus faecalis</i> and coagulase-negative <i>Staphylococcus</i> from aspirate	11
1 d	Endotracheally intubated	<i>Escherichia coli</i> from blood	12
10 d	None	<i>Staphylococcus aureus</i> from blood and aspirate	13
22 d	Nasopharyngeal continuous positive airway pressure	Blood and aspirate cultures negative (cultures were taken while the infant was on antibiotics)	14
3 d	None	Group D <i>Enterococcus</i> from blood and gamma <i>Streptococcus</i> and <i>Escherichia coli</i> from aspirate	15
2 mo	Endotracheally intubated	<i>Staphylococcus aureus</i> from aspirate	16
Neonate	Endotracheally intubated	<i>Escherichia coli</i> from blood and aspirate	17
Neonate	Endotracheally intubated	No cultures reported	17
6 d	None	<i>Staphylococcus aureus</i> from aspirate	18

nity sources.¹ The recent implementation of rigorous guidelines for the prevention of perinatal GBS disease has resulted in a dramatic decrease in the incidence of early-onset disease with a stable rate of late-onset infections.² Early-onset disease remains slightly more common with an estimated 1600 cases in the United States in 1999 as compared with 1100 cases of late-onset disease.

The clinical manifestations of GBS infection vary according to the age of the infant. Early-onset disease most commonly manifests as sepsis, meningitis, and pneumonia, all of which frequently present with respiratory signs such as tachypnea and grunting as an initial clinical finding. The dominant presentations of late-onset GBS disease are meningitis, bacteremia, and bone and joint infection. Clinical signs in these infants are almost always nonspecific and include fever, irritability, poor feeding, and lethargy.³

A less common clinical manifestation is cellulitis. These infants present with symptoms similar to those seen in other forms of late-onset infection and also have swelling and erythema of the involved site. The submandibular and parotid areas are the most frequently involved sites, and, in one report, several infants are described as having enlarged lymph nodes associated with the infection. The majority of reported cases have GBS bacteremia at the time of presentation.⁴

Retropharyngeal infections are extremely rare in young infants. Among retrospective studies, a total of more than 150 children with retropharyngeal abscess or cellulitis were identified, but none of the patients was younger than 3 months.^{5–9} In a literature review extending back to 1966, we were able to find 12 case reports of retropharyngeal infection in infants younger than 3 months without a preexisting abnormality.^{10–18} Of these, 5 infants had sustained trauma to the retropharynx from endotracheal intubation or nasopharyngeal continuous positive airway pressure. Seven of the infants presented with no identifiable cause. Of the 12 infants described, 2 had infection caused by group B *Streptococcus* (Table 1).

Initial clinical signs commonly reported in young infants with retropharyngeal abscess or cellulitis are

typically respiratory distress, poor feeding, and submandibular swelling. Several of the infants were also described as being irritable and having a hoarse, weak cry. Lateral radiographs of the neck, when obtained, consistently revealed widening of the retropharyngeal space. Similar to our patient, many of the neonates initially were afebrile. The total leukocyte count was variable among the cases described, which is not unusual, as total leukocyte counts have been shown to be poor predictors of infection in young infants.¹⁹

An infant with acute, unexplained crying and a negative initial physical examination must always be evaluated until the cause is determined and serious conditions are ruled out. A thorough examination should be performed to identify signs of infection, trauma, corneal abrasion, intestinal malrotation, testicular torsion, incarcerated hernia, and hair tourniquet. The extremities should be palpated for possible fractures and observed for signs of unusual posturing or decreased motion, and radiographic examination, including skeletal survey, should be considered. Finally, as illustrated in this case, consider occult soft tissue infections; in the case of retropharyngeal abscess or cellulitis, cervical spine radiographs should be obtained if indicated.

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