CASE REPORT

Imperforate Hymen Complicated with Pyocolpos and Lobar Nephronia

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An imperforate hymen is not a rare condition in female newborns, but is often ignored in a genital examination by physicians. Lobar nephronia is a rare condition in pediatric patients that can be screened by ultrasound or computed tomography to distinguish it from a renal abscess. Treatment for lobar nephronia requires at least 14 days of antimicrobial therapy and a follow-up assessment by renal ultrasonography or dimercaptosuccinic acid scan. We report an unusual case of a 2-year-old girl with an imperforate hymen and pyocolpos. The pyocolpos compressed the left lower ureter to cause hydronephrosis, and nephronia. Partial hymenotomy was performed to drain the pus, and antibiotics were administered for a total of 3 weeks. There was a good outcome. This case demonstrates the need to perform a full physical examination, particularly a genital examination, in newborns. Further, if gynecologic pathology is suspected, then urologic screening studies are recommended to rule out potential associated anomalies. [J Chin Med Assoc 2006;69(5):224–227]

Key Words: imperforate hymen, lobar nephronia, pyocolpos

Introduction

The genital examination, among the series of physical examinations for newborns, is often ignored by physicians, although an imperforate hymen is not a rare condition in female newborns. In the literature, imperforate hymen usually presents at puberty with primary amenorrhea, abdominal pain, and hematocolpos. Infants with an imperforate hymen may present with an abdominal mass, obstructive uropathy, and hydrocolpos, which is difficult to detect. Lobar nephronia or acute focal bacterial nephritis (AFBN) is a rare pediatric condition that can be caused by either a hematogenous route or an ascending infection. The former is usually caused by Staphylococcus and the latter by a Gram-negative bacterial infection as a consequence of a congenital urinary tract anomaly. We report an unusual case of a 2-year-old girl with an imperforate hymen and pyocolpos that compressed the left ureter and caused a hydrouraeter, hydronephrosis, and lobar nephronia.

Case Report

A 2-year-old girl was brought to our emergency room because of intermittent high fever (up to 42°C) of unknown origin for the previous 4 days. Her parents said that the child had been lethargic and had a poor appetite; she had not had an upper respiratory tract or gastrointestinal tract infection, and there was no significant past medical or contributing family history. The physical examination revealed no abnormal findings; however, a genital examination was not done at that time. The laboratory findings showed: peripheral leukocyte count, 19,700/mm³; differential (segment/lymphocyte/monocyte) 80/4/11.2; and C-reactive protein, 12.01 mg/dL. Urinalysis revealed: white blood cell, 3+/HPF (high-power field); red blood cell, 10/HPF; and positive nitrite reaction. She was admitted to our ward for further evaluation and treatment.

After admission, ampicillin and gentamicin were administered; however, the fever persisted even after 48 hours of antibiotic treatment. Renal ultrasound...
revealed hydrenephrosis and hydroureter on the left side. Subsequently, the genital area was examined and an imperforate hymen was confirmed. A dimercaptosuccinic acid (DMSA) renal exam was done and revealed left renal parenchymal damage. Abdominal magnetic resonance imaging (MRI) revealed a large hydrocolpos compressing the left ureter and causing hydrenephrosis with a left renal abscess or nephronia (Figure 1).

The patient underwent surgical partial hymenotomy (Figure 2) and 150 mL of pus-like fluid was drained from the hydrocolpos. The fluid was sent for bacterial culture and *Morganella morganii* was isolated, which was found to be resistant to ampicillin, but sensitive to ceftazidime. Her initial urine culture revealed *Escherichia coli* and a blood culture had negative findings. Her fever subsided 2 days after the initiation of ceftazidime therapy. She received ampicillin and...
gentamicin for 7 days and ceftazidime for another 14 days. The follow-up urine analysis and vaginal bacterial culture were normal. A follow-up renal ultrasound demonstrated resolution of the nephronia 2 weeks later. Because the parents were returning home to the USA, she was discharged and received follow-up care there.

Discussion

Pyocolpos, an infected fluid collection within the vagina, is a rare condition. The etiology may include an imperforate hymen, a transverse vaginal septum, and maternal estrogen overstimulation. Clinical symptoms are usually insidious, unless it becomes an evident mass in the lower abdomen or when it compresses the ureter and causes hydronephrosis or a urinary tract infection. Treatment is dependent upon the etiology. If it is caused by an imperforate hymen, then a hymenotomy should be performed. An imperforate hymen is not a rare condition in female newborns. The incidence can be 1 in 1,000, but genital examination is frequently ignored in the physical examination of newborns. Morganella morganii is normal flora in the gastrointestinal tract, but not in the genitourinary tract. In this patient, the pyocolpos may have resulted from bacterial seeding by a hematogenous route.

Lobar nephronia, also known as acute focal bacterial nephritis (AFBN), is a renal mass caused by focal infection without liquefaction. The process usually involves 1 or more renal lobules. AFBN may occur near a renal abscess, so it can reasonably be assumed to precede or lead to a renal abscess. An AFBN or renal abscess may result from spreading via the hematogenous route or an ascending infection. Because of the high incidence of urinary tract abnormalities, ultrasonography, such as avoiding cystourethrogram (VCUG), is warranted. An AFBN is usually distinguished from a renal abscess by renal ultrasonography. The former shows a focal hypoechoic area with poorly defined margins and the latter shows clearly defined margins and a central anechoic area. A computed tomography (CT) scan is considered the most sensitive and specific radiologic modality to diagnose AFBN by demonstrating a solid wedge-shaped area that contains poorly marginated regions of decreased enhancement. We ordered renal ultrasound as a screening test to detect renal swelling, bulging, or enlargement; however, in the opinion of Soulen and colleagues, renal ultrasound should not be used for lesions that may require invasive therapy. Although CT scan is the preferred form of imaging, it is best used only in children showing abnormalities on the ultrasonography and who do not respond well to antibiotics, or when a renal abscess is clinically suspected. The DMSA scans are the imaging modality of choice for detecting renal scarring in children and might be useful in the follow-up during the late phase of an AFBN, although AFBN is rare among the pediatric population. Symptoms of AFBN are usually nonspecific and most patients have fever, abdominal pain, and flank pain. Antimicrobial therapy tailored to the urinary pathogens is recommended in AFBN for a minimum of 14 days. The resolution of inflammatory changes, as detected on the ultrasonography, starts after 4–6 weeks of treatment in uncomplicated cases. Follow-up studies often detect renal scarring in the majority of the children affected with AFBN. As we learned from this case, the importance of a detailed physical examination to include the genital area cannot be overstated. Because of the high incidence of associated urinary tract abnormalities and urinary tract infection, an initial renal ultrasonography or even a whole abdomen ultrasonography and a urologic evaluation for screening are recommended.

References

