Xanthogranulomatous pyelonephritis presenting with thrombocytopenia and renal mass

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Abstract

Xanthogranulomatous pyelonephritis (XGP) is a rare event in children without any predisposing factor like calculi, obstruction or vesicoureteral reflux. In this case we report a four-year-old girl who presented with a renal mass, hematuria, flank pain, anemia and thrombocytopenia—these signs and symptoms misled us to Wilms tumor. Thrombocytopenia which is a strange event in XGP resolved after nephrectomy. Normal contra lateral kidney was infected four months after right nephrectomy. This suggests that these patients should be under strict surveillance and antibiotic prophylaxis as they are a high-risk group for urinary tract infection, and thrombocytopenia should be considered as a laboratory test finding in XGP.

Key Words: Renal mass, thrombocytopenia, xanthogranulomatous pyelonephritis

INTRODUCTION

Xanthogranulomatous pyelonephritis (XGP) is defined as a chronic inflammatory disorder of the kidney characterized by a destructive mass that invades the renal parenchyma. Though Schlagenhaufer first described XGP in 1916, the first pediatric case was not described until 1963. Although XGP is rare in the pediatric population, it is found in approximately 16% of pediatric nephrectomy specimens. The exact etiology of XGP is unknown, but it is generally accepted that the disease process requires long-term renal obstruction and infection.[1] In this case report we present a four-year-old girl with renal mass and thrombocytopenia diagnosed as XGP in spite of lacking any predisposing factors like as stone or reflux. She came Although anemia, leukocytosis and elevation of blood sedimentation are considered as the principle laboratory findings in XGP,[2] thrombocytopenia can be considered as a new finding in this group of patients, which resolved after nephrectomy in our case.

CASE REPORT

A four-year-old girl presented with flank pain that had begun two months ago along with hematuria, pyuria, anemia and thrombocytopenia in her laboratory test results [Table 1]. She also had low-grade fever which resolved after two days by antibiotic therapy. Her growth indices were in normal range (weight 18 kg above +1 SDS and height 98 cm (0 to +1 SDS), her sonography showed a hypo echoic mass, technetium-99m-dimercaptosuccinic acid scan (Tc⁹⁹ DMSA) failed to take radiotracer in the upper and middle part of the right kidney [Figure 1]. Thus contrast computerized tomography (CT) has been done [Figure 2].

Urine culture was positive (50000 colony count of E. coli). After a complete antibiotic therapy for E. coli infection, her voiding cystourethrography showed nothing.

She went under operation for excising mass, (sized...
first month after her operation her thrombocytopenia resolved. In the second admission four months later she was febrile with pyuria, her computerized renal scan showed a new episode of pyelonephritis in her normal left side; [Figure 3] which was not affected earlier, according to her previous DMSA and CT scans. She treated with antibiotics for 14 days. She left hospital with antibiotic prophylaxis with attention to her recurrent urinary tract infection.

Her cystourethrogram showed no vesicoureteral reflux. [Figure 4].

DISCUSSION

Xanthogranulomatous pyelonephritis (XGP) was considered as a rare form of chronic pyelonephritis, which is usually caused by calculus obstructive uropathy[3] and most often occurs in middle-aged women with a history of recurrent urinary tract infection.[4] It seems that XGP in children occurs more rarely.

Table 1: In first and second admissions her laboratory findings revealed leukocytosis with mild normocytic anemia, high ESR, and thrombocytopenia which recovered after nephrectomy

|                     | Hb (g/dl)/MCV (fL)/WBC (x1000/µL) | Platelet (x1000/µL)/ESR | Urine WBC | Urine RBC | Specific gravity | Imaging                          |
|---------------------|----------------------------------|-------------------------|-----------|-----------|------------------|----------------------------------|
| At admission        | 10.5/78/11000                   | 76000/60                | 20-25     | 30        | 1025             | A heterogeneous mass spaced upper, middle part of right kidney |
| Four months later   | 11.1/76/13000                   | 178000/40               | 20        | 20        | 1020             | Hypodense foci in upper part of left kidney |

Figure 1: At first admission, Tc99 DMSA scan shows upper part of right kidney has not taken radiotracer, left kidney shows homogenous uptake without scar or acute pyelonephritis. Technetium 99 dimercaptosuccinic acid: TC99 DMSA

Figure 2: Computerized tomography scan with contrast shows heterogeneous mass in the upper and middle part of the right kidney

Figure 3: Computerized renal scan with contrast shows heterogeneous mass in the upper, middle part of right kidney

Figure 4: Computerized renal scan with contrast shows hypodense foci in upper part of left kidney
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and nephrolithiasis (77.8-100%). Blood changes that may occur in them like anemia (100%) and leukocytosis (77-84%) and positive urine culture (30-88.9%). Reports of thrombocyte count changes in XGP are scarce but thrombocytosis has been reported by some.[10,11]

Our case was a four-year-old girl without preexisting structural renal disease. Diagnosed as XGP. Her laboratory findings were similar to previous studies about XGP except a moderate thrombocytopenia, a confusing sign, lead us to neoplasia diagnosis which resolved shortly after nephrectomy. Her left normal side kidney infected after 4 months which pose an question to us that damaged excised renal has protected normal renal side until now? Is total nephrectomy a safer and better management for XGP? Or prophylactic antibiotic should be considered for these groups of patients in spite of having no risk factors like as reflux or stone?

CONCLUSION
We should consider thrombocytopenia as a new laboratory test for XGP in addition in children with XGP strict surveillance for new episodes of pyelonephritis should be considered in spite of lacking predisposing factors.

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