GUIDELINES IN MANAGMENT OF EQUIVOCAL CASES IN PEDIATRIC URETEROPELVIC JUNCTION OBSTRUCTION

THESIS

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ABSTRACT

This study is concerned with the choice between conservative and surgical treatments for equivocal unilateral Ureteropelvic junction obstruction in infants. Twenty six cases had been included. Progress of the Anteroposterior diameter of renal pelvis and split renal function of the affected kidney, had been recorded. And it was concluded that increase in AP diameter more than 3 cm, may be a strong guideline for immediate surgery to avoid expected renal deterioration, And if Ap diameter at presentation was less than 3 cm , so it is better give chance for conservative mangment.

KEY WORDS:

Ureteropelvic junction obstruction – Split renal function – Pediatric hydronephrosis – Anteropsterior Diameter

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INTRODUCTION AND AIM OF THE WORK

A ureteropelvic junction obstruction (UPJO) can be thought of as a restriction to flow of urine, from the renal pelvis to the proximal ureter causing dilatation of the renal pelvis (hydronephrosis) (1, 2, 3). It can be due to primary (congenital) causes or secondary (acquired) causes.

It is a common disease in infants, with overall incidence of 1:1500 live births (4). Moreover, it is the most common cause of neonatal hydronephrosis. Patients with UPJO are at risk for kidney function deterioration which may proceed to permanent kidney function loss, thus early successful management of this disease, protects against the serious consequences of this disease.

In the management of UPJO disease in infants, there is a great debate about how to differentiate accurately between patients who need surgical correction to avoid renal function deterioration and those who are not at risk of renal function deterioration and does not need surgical correction. This debate is most obvious in the group of patients with gray zone parameters for intervention. Thus in this study, we are concerned with this debate in the management of the equivocal UPJO cases, in a trial to figure out what to do and which treatment option to encourage in this group, so we will see which option decision has been more commonly applied in our

study group according to the most commonly suggested criteria in literature.

The aim of the study is to describe the progress of the equivocal cases of UPJO disease in infants hoping of putting guidelines for the choice of treatment of these cases.

REVIEW OF LITERATURE

DEFENITION of UPJO

A ureteropelvic junction obstruction (UPJO) can be thought of as a restriction to flow of urine, from the renal pelvis to the proximal ureter causing dilatation of the renal pelvis (hydronephrosis), which, if left uncorrected, leads to progressive renal deterioration (1,2,3).There is a disagreement regarding the definition of UPJO. Although the concept that congenital obstruction is an “impairment of urine flow that will produce a reduction in function if left uncorrected” is logical (5), it misses several important elements in the context of congenital obstruction. One is that the developing kidney should be increasing its function, not remaining static. It also does not provide any insight into the interpretation of a kidney that has reduced function when diagnosed. Strictly interpreted, this kidney is already affected and by definition is “obstructed.” This interpretation has not been used clinically, however, and it is only on prospective follow-up that a decrease from normal is considered by many to be indicative of “obstruction.” A more useful definition might be that any condition that has or will limit ultimate functional potential should be considered clinically significant obstruction (6).

It should also be recognized that “obstruction” does not mean that surgical therapy is required. The obstruction may be mild and clinically insignificant. Exclusion of these patients from the diagnosis of “obstruction” has tended to force people to create convoluted descriptions of hydronephrotic kidneys.

INCIDENCE of UPJO

Congenital UPJO is the most common diagnosis associated with hydronephrosis in infants and children, with overall incidence in 1 of 1500 live births (4).

It occurs in all pediatric age groups, but there tends to be a clustering in the neonatal period because of the detection of antenatal hydronephrosis and again later in life because of symptomatic occurrence. At one point, about 25% of cases were discovered within the first year of life (7), but today the majority of cases are identified and diagnosed in the perinatal period (8).

Congnital UPJO is the most common cause of significant dilation of the collecting system (hyderpnephrosis) in the fetal kidney, accounting for 48% of all dilation of the collecting system and far exceeding the incidence of multicystic dysplastic kidney (8).

Obstruction occurs more commonly in boys than in girls (9), especially in the newborn period, when the ratio exceeds 2:1 (7,9,10). Left-sided lesions predominate, particularly in the neonate (approximately 67%). Bilateral UPJO is present in 10% to 40% of cases (7,9,10), with both synchronous and asynchronous

occurrences. This tends to occur in infants younger than 6 months of age (11), and it has been known to affect members of more than one generation (12).

Congenital renal malformations are commonly seen in association with UPJ obstruction. Other urologic abnormalities may be found in 50% of affected infants (10). The UPJO is the most common anomaly encountered in the opposite kidney; it occurs in 10% to 40% of cases. Renal dysplasia and multicystic dysplastic kidney are the next most frequently observed contralateral lesions (13). In addition, unilateral renal agenesis has been noted in almost 5% of children (7,9,10). UPJO may also occur in either the upper or the lower half (usually the latter) of a duplicated collecting system (R-14) or of a horseshoe or ectopic kidney.

Ureteropelvic juction obstruction was noted in 21% of children with the VATER (vertebral defects, imperforate anus, tracheoesophageal fistula, and radial and renal dysplasia) association (15), whereas a more recent review showed a 9% incidence of UPJ obstruction, along with the majority of patients having some degree of hydronephrosis but no obstruction or reflux, solitary renal kidneys, or a small percentage with multicystic dysplastic kidneys (16).

Vesicoureteral Reflux (VUR) has been found in as many as 40% of affected children. This degree of reflux is often low grade, not contributing to upper urinary tract obstruction, and with a high likelihood of spontaneous resolution. In certain situations, high-grade VUR can have a profound effect on the ureteropelvic junction (UPJ), as previously noted. Anomalies of other organ systems are frequently observed but without any consistent pattern of inheritance. (7,17).

ANATOMY of UPJO

The ureteropelvic (UPJ) junction is an anatomically indistinct segment of the upper collecting system where the renal pelvis funnels into the ureter. In normal anatomy, the renal pelvis exits the kidney at the renal hilum posterior to the renal vein and artery. In 25-40% of kidneys, a supernumerary artery crosses the urinary collecting system on its course into the lower pole of the kidney; this may cause extrinsic mechanical obstruction. The blood supply for the UPJ itself is typically derived from branches of the renal artery and is anteromedial to the ureter (18).

The Ureteropelvic junction (UPJ), like the rest of the ureter, consists of 2 layers of smooth muscle: an inner longitudinal layer and an outer circular, or spiral, layer. This muscle actively propels urine through the lumen (18).