IDIOPATHIC HYDRONEPHROSIS IN THE YOUNG MILITARY POPULATION

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SUMMARY: Fifty cases of idiopathic hydronephrosis seen by the Army Urology Unit from 1972 to 1977 are reported. Special points of interest are the low average age and the high incidence of alcohol-induced pain and sport-induced haematuria. The diuretic renogram has proved to be particularly useful in the follow-up of these cases. Conservative surgery is re-affirmed as the ideal treatment.

Introduction

Idiopathic, congenital or primary pelvic hydronephrosis is a well recognised condition, which can present at any age¹, but most commonly in children² and in the third decade. The aetiology is still uncertain, though the work of Murnaghan³ and Whitaker⁴ has demonstrated that there is an abnormality of muscular peristaltic conduction in the pelvis and pelviureteric junction, which constitutes a functional obstruction to urine flow. Many series have described the diagnosis, surgery and follow-up of this condition^{1 2 5-10}, but none have concentrated on the young adult. In Hanley's⁶ paper he noted that over half of his cases were Army personnel and that their average age at operation was eight years younger than that of his civilian patients. This report covers the experience of the Army Urology Unit with idiopathic hydronephrosis in the six years 1972 to 1977.

Materials and methods

The records of all cases of idiopathic hydronephrosis presenting in the years 1972 to 1977 were studied. Many were still under review, but up-to-date information on those not seen in the last six months was obtained from the patients themselves and their medical attendants. The following were noted:

Age, sex, presenting symptoms, time taken to diagnose from first onset of symptoms, intravenous urogram and diuretic renogram findings, operative findings and follow-up results to mid-1979.

Results

The number in the study with full follow-up was 50 patients. Their average age was 23.5 years and the male to female ratio four to one (contrast the civilian series' average age of 36.5 years and male to female ratio of two to three). The presenting symptoms are shown in Table I. The times taken for the true diagnosis to be established after the onset of the first relevant symptoms were:-

i. A few days; 10 per cent. ii. One to six months; 20 per cent. iii. One year; 14 per cent. iv. Several years; 56 per cent.

It can be seen that over 50 per cent of patients had referable symptoms well before joining the Service. Several patients were investigated, and a few operated upon, for other diagnoses (Table II). In the routine assessment of cases, intravenous

urography and isotope renography, before and after intravenous frusemide, were employed. These tests agreed in pelvic-ureteric junction (PUJ) obstruction in 90 per cent of cases. Three 'normal' kidneys on intravenous urogram (IVU) were shown renographically, and proven surgically, to be obstructed. Bilateral hydronephrosis was noted in 10 patients, one side always being the worse. The findings noted at operation are listed in Table III. The 60 per cent incidence of lower polar vessels (LPV) accords with other series^{6 8}.

In 85 per cent of the cases some type of pyeloplasty was performed and nephrectomy in the other 15 per cent, when the kidney was thought to be unsalvageable. The Anderson-Hynes disconnection pyeloplasty was used in all but five cases (two Culp and three Foley Y-V). Re-exploration was required in six patients, when there was recurrent or persistent obstruction confirmed by renogram, three having a 'redo' pyeloplasty and three a secondary nephrectomy. The follow-up results are given in Table IV.

Table I
Presenting symptoms

Symptoms	This series (percentage)	Civilian series (percentage)
Loin pain alone	45.5	55.5
Loin pain after drinking	23.7	7.4
Loin pain with haematuria	10.9	16.6
Haematuria alone	1.8	3.7
Haematuria from sport (trauma or exertion)	12.7	1.8
Urinary tract infection	5.4	12.9
(Considered to be 'hysterical' or 'over-reacting' on first presentation)	5.0	—

Table II
Other diagnoses

Diagnosis	Number	Diagnosis	Number
Appendicitis — appendicectomy	2	Large bowel pain — sigmoidoscopy	1
Cholecystitis — Cholecystectomy	1	Abdominal pain — cholecystogram,	
Tubo-ovarian pain—laparoscopy	1	barium meal, endoscopy	1
Ureteric stone	2	Trauma	5

Table III
Operative findings

Findings	Number	Findings	Number
Lower Polar vessel (LPV)	20	Narrow PUJ alone	8
LPV plus adhesions and/or kinking	7	Atonic PUJ alone	7
LPV plus 'narrowed' PUJ	4	'High take-off' ureter	1
LPV plus 'atonic' PUJ	3

Fig 2. Dilated system post-pyeloplasty shows 'obstructed' picture pre-lasix (left), but normal drainage post-lasix (right), ie capacious system only

Fig 3. Case of intermittent obstruction with (left) normal intravenous urogram, but (right) obstructed diuretic renogram

more helpful in the follow-up period. It is simple and rapid with minimal radiation and will solve the not uncommon postoperative problems of the patient with recurrent pain or the system which remains dilated on urography. In fact, post-pyeloplasty follow-up with diuretic renogram alone would now seem logical.

Idiopathic hydronephrosis is potentially bilateral and obstruction in the remaining kidney after nephrectomy has been recorded, often several years later^{1 8 10 14}. One of our cases required pyeloplasty in such a remaining kidney 17 years after nephrectomy. It is now suggested that patients having nephrectomy for idiopathic hydronephrosis should be followed indefinitely with diuretic renography to detect early obstruction in the remaining kidney.

Our operative findings, preference for the disconnection pyeloplasty and re-exploration rate are no different from other reports. This study confirms that pyeloplasty carries long-term success⁹.

Conclusions

The Services require full physical fitness from all its members. The morbidity associated with idiopathic hydronephrosis could be minimised by earlier recognition:

- i. More detailed enquiry at the entry medical may uncover positive or suspicious histories, leading to urological investigation at this stage.
- ii. Patients with loin pain after drinking or haematuria, after exertion or trauma (however minor) at sport should be investigated.
- iii. A young patient with intermittent unexplained abdominal pain should have an intravenous urogram and diuretic renogram.

Conservative surgery is the ideal, allowing the serviceman to return to full fitness within six to 12 months. Follow-up of the patient with idiopathic hydronephrosis after pyeloplasty or nephrectomy can be achieved with diuretic renography alone.

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REFERENCES

1. ROBERTS, J B M and SLADE, N (1964). The natural history of primary pelvic hydronephrosis. *Br J Surg* **51**, 759-762.
2. NIXON, H H (1953). Hydronephrosis in children. *Br J Surg* **40**, 601-609.
3. MURNAGHAM, G F (1958). The mechanism of congenital hydronephrosis with reference to the factors influencing surgical treatment. *Ann R Coll Surg* **23**, 25-46.
4. WHITAKER, R H (1975). Some observations and theories on the wide ureter and hydronephrosis. *Br J Urol* **47**, 377-385.
5. BURNS, C N, DREW J E and DEAN, A L (1953). Ureteropelvic obstruction with hydronephrosis: Treatment by pyeloplasty in 23 cases. *J Urol* **70**, 846-856.
6. HANLEY, H G (1959). The pelvic-ureteric junction: a cine-pyelography study. *Br J Urol* **31**, 377-384.
7. SUTHERLAND, H (1963). A review of experience with the Anderson-Hynes plastic operation for hydronephrosis. *Br J Urol* **35**, 1-10.
8. WILLIAMS, D I and KARALAFIS, C M (1966). Hydronephrosis due to pelvic-ureteric obstruction in the new-born. *Br J Urol* **38**, 138-144.
9. NOTLEY, R G and BEAUGIE, J M (1973). The long-term follow-up of Anderson-Hynes pyeloplasty for hydronephrosis. *Br J Urol* **45**, 464-467.
10. HANNA, M K (1978). Some observations on congenital ureteropelvic junction obstruction. *Urology* **12**, 151-159.
11. O'REILLY, P H, *et al* (1978). Diuresis renography in equivocal urinary tract obstruction. *Br J Urol* **50**, 76-80.
12. O'REILLY, P H, LAWSON, R S, SHIELDS, R A and TESTA, H (1979). Idiopathic hydronephrosis: the diuresis renogram: a new non-invasive method of assessing equivocal pelvioureteral junction obstruction. *J Urol* **121**, 153-155.
13. LUPTON, E W *et al* (1979). Diuresis renography and morphology in upper urinary tract obstruction. *Br J Urol* **51**, 10-14.
14. MICHIGAN, S, WHELTON, P K and WALSH, P C (1978). Forgotten kidney: asynchronous bilateral ureteropelvic junction obstruction. *Urology* **12**, 565-566.