BIFID BLIND-ENDING URETER - A CASE REPORT

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ABSTRACT

An interesting case of bifid blind-ending ureter occurring in a young Indian girl is reported. She presented with severe recurrent right iliac fossa pain for which she underwent appendicectomy which did not resolve her symptoms. Subsequent urological investigation - IVU and retrograde pyeleogram – revealed the genuine diagnosis. Surgical excision of the blind-ending branch was successful in relieving the intractable pain. A review of the literature on this uncommon congenital urological problem is outlined stating its clinical significance and treatment options.

Keywords: Bifid blind-ending ureter, abdominal pain, urological investigations, surgical excision

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INTRODUCTION

A duplicated ureter with a blind-ending branch forms one of the rarer varieties of congenital ureteric duplications. In the available literature, most authors have reported their experiences of single to a few cases each. While most were symptomatic from pain or infection, there has been sporadic reports of incidental asymptomatic patients.

The following case adds on to the literature as one who was severely symptomatic and required surgical intervention.

CASE REPORT

A 16-year old Indian girl gave a history of right iliac fossa and lumbar pain occurring since she was 11 years of age. These symptoms were initially mild but progressed in frequency and severity until they affected her daily activities. She was, at one stage, managed in another hospital where an appendicectomy was performed. When the symptoms did not disappear post-operatively numerous suspicions were implicated, like adhesion colic and gastritis. Conservative management was offered without success. She even resorted to hypnosis.

Six months later, an IVU was ordered. This revealed a blind-ending duplicated right ureter which had its origin caudally and terminating at the level of the sacro-iliac joint (Fig. 1). Her urine did not suggest any infection. Micturating cysto-urethrogram revealed no reflux. A cystoscopy and retrograde study (Fig. 2) demonstrated only one ureteric orifice on the affected side with the retrograde catheter preferentially entering the blind end. Similar pain was reproduced during contrast injection.

Excision of the blind-ending branch was carried out using an extraperitoneal approach via a Pfannenstiel incision. The dilated blind-ending branch was seen to arise at the point of commencement of the intramural ureter and measured 10 cm in length (Fig. 3). Adhesions probably due to previous inflammation were noticed around the blind-end. The duplicated ureter bore a close relationship to the main ureter along its entire length. Interestingly, after carefully dissecting free the blind pouch, urine was seen to fill and distend it from the main ureter. Excision was carried out by dividing it at its junction with the main ureter.

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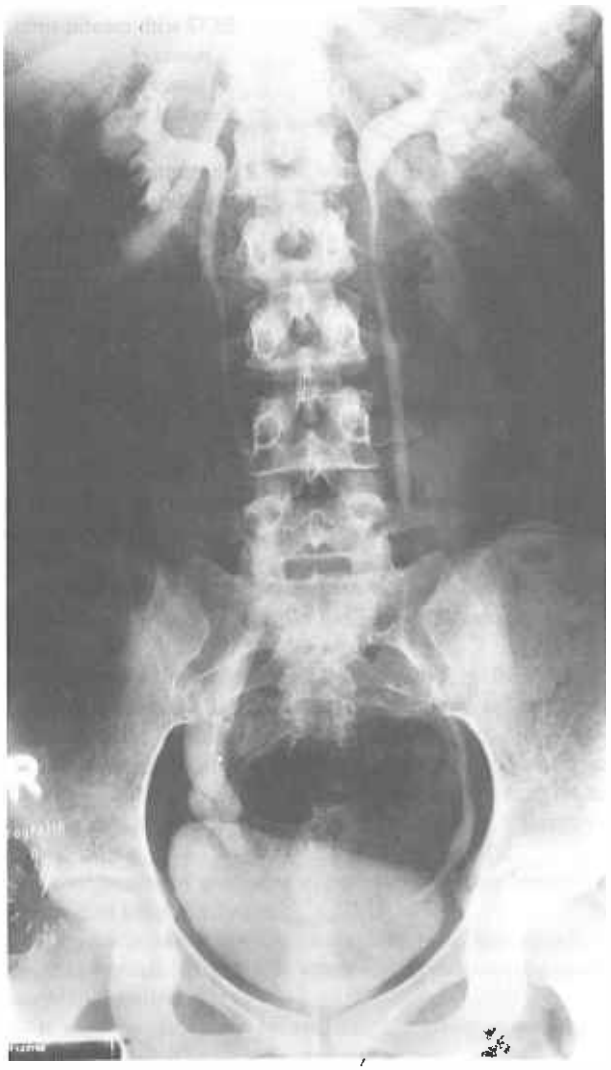
The post-operative recovery was uneventful and her symptoms were completely relieved. Follow-up with an IVU at three months showed a normal right ureter (Fig. 4). Histological examination confirmed a dilated blind-ending ureter with muscular wall hypertrophy.

Fig. 1 – IVU showing right bifid blind-ending ureter



DISCUSSION

Blind-ending duplicated ureters occur as a result of disordered embryogenesis. Culp[1] defined a blind-ending ureter as a tubular

Fig. 2 – Retrograde pyelogram showing right bifid-blind-ending ureter

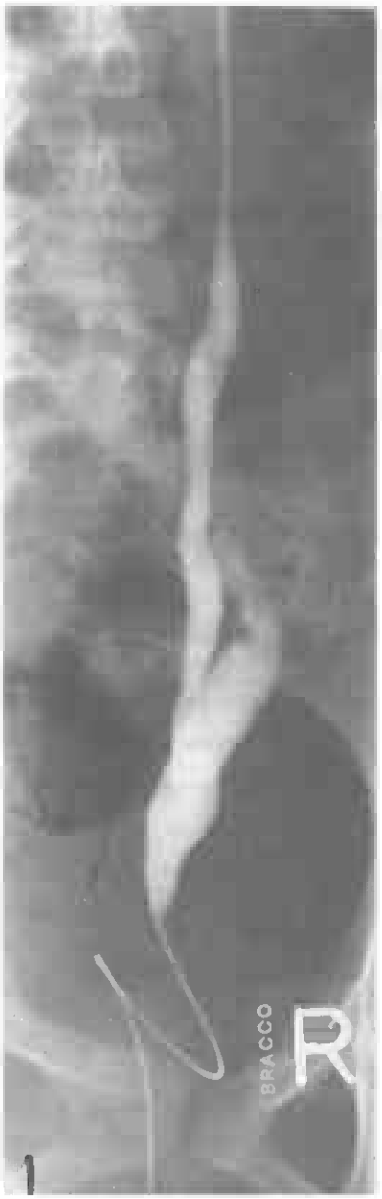


Fig. 3 – Intraoperative demonstration of the blind-ending ureter and its junction with the normal ureter

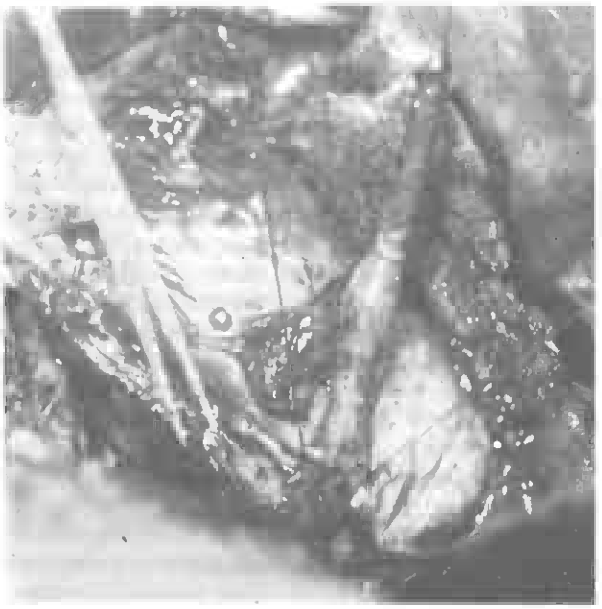
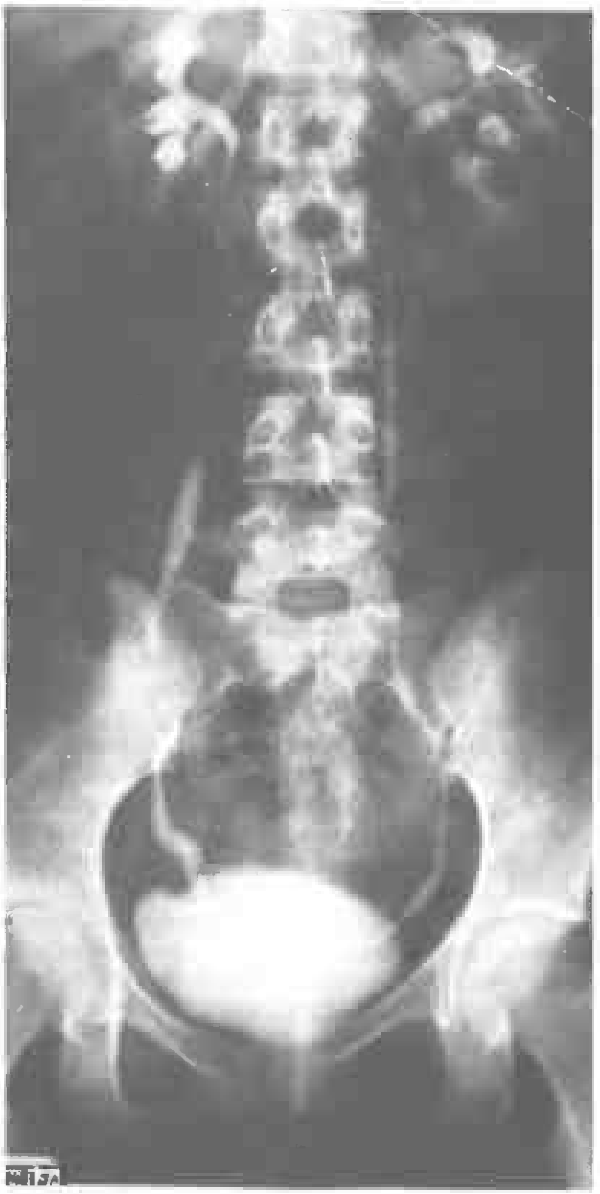


Fig. 4 – Post-operative IVU showing normal right ureter



structure whose length is greater than twice its diameter and contains all 3 normal tissue layers. He went on further to distinguish congenital ureteral diverticulum as a globular or saccular outpouching containing all 3 tissue layers. Rank[2] however, argues that these congenital diverticula were merely distended bifid blind-ending ureters. Acquired diverticula of the ureter do not contain all 3 layers and occur as a result of trauma, surgery, impacted calculi or infection.

During normal development, the ureter is formed at about the fourth week of intrauterine life as a bud emerging from the mesonephric (Wolfian) duct. Ureteric duplications constitute the most common ureteric abnormality. It may be complete, as a result of 2 separate ureteric buds arising from the Wolfian duct or incomplete, due to premature branching of the ureteric bud. If the developing ureter fails to establish contact with the metanephros, a blind-ending ureter results. This anomaly can therefore exist in either complete[3-6] or incomplete ureteric duplications[7-10].

Females are affected more commonly than males. The ages at discovery of the anomaly ranges from childhood to the

elderly[8]. It is usually unilateral but very rarely may be bilateral[5]. Caudal origin of the blind end is the most usual anomaly though cranial forms are reported[10].

While some cases may be relatively asymptomatic or only discovered incidentally at time of operation, most others present with recurrent abdominal pain, dysuria, frequency and sometimes haematuria. These symptoms are caused by recurrent infection, calculi in the blind ureter or reflux as in this case. Reflux from the main ureter into the blind-ending branch due to asynchronous peristalsis of the two limbs has been demonstrated by Lenaghan[11] using cineradiography.

The diagnosis of this condition is not always confirmed from the IVU alone. Retrograde pyelography seems to be the suitable arbiter in most cases. Haber[12], suggested that oblique, supine Trendelenburg or prone views during the IVU examination give better yield in cases where blind-ending branches are overlapped by the main ureter or pelvis. In this case, the retrograde was extremely useful in outlining the duplicated blind-end more definitely as well as reproducing the patient's symptoms on contrast injection.

In the literature, there seems to be a significant proportion of cases who were relatively asymptomatic despite the presence of a blind-ending duplicated ureter. These patients had minor episodes of urinary tract infection which were treated with antibiotics[8-10]. However, when this condition affects the younger age group, surgical measures were necessary to rid them of recurrent urinary tract infections or severe abdominal pain. Excision of the blind-ending branch is successful especially in incomplete duplications. Careful dissection is a notable point as both ureters are contained in the same Waldeyer's sheath. The periureteral adventitia should be left with the ureter to be preserved and one should avoid mobilising this ureter unnecessarily.

In cases of complete duplication with a blind-ending component that is refluxing or discovered incidentally at operation, an alternative form of management would be to perform a common sheath reimplantation[3,5]. The technique involves reimplantation of both the normal and blind-ending ureter while still within the Waldeyer's sheath. This is appropriate if the blind ureter is of normal calibre and non-diseased. This technique bears the advantage of avoiding injury to the normal ureter which may not be easy during dissection of the blind-ending ureter in a small child.

Peterson[13] has described the necessity of a nephroureterectomy for end-stage hydronephrosis and pyonephrosis arising from obstruction by the dilated blind-ending branch.

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