

REFERENCES

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PROTOCOL

ASSESSMENT OF SAFETY AND EFFICACY OF FLEXIBLE URETERORENOSCOPY FOR THE MANAGEMENT OF UPPER URINARY TRACT UROLITHIASIS IN CHILDREN

تقييم أمان وكفاءة استخدام منظار الحالب المرن في علاج حصوات الجزء العلوي من الجهاز البولي (الحالب والكلي) عند الاطفال

Protocol of a thesis submitted
to the Faculty of Medicine
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خطة بحث مقدمة
لكلية الطب
جامعة الإسكندرية
إيفاءً جزئياً
لشروط الحصول على درجة
الماجستير في جراحة المسالك البولية والتناسلية

by

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INTRODUCTION

Urolithiasis in childhood is rare in the developed world, representing 1% to 5% of all urinary tract stones.⁽¹⁾ However, in developing countries, the occurrence of pediatric urolithiasis is 30% of all urinary tract stones.⁽²⁻³⁾

Many therapeutic options are available for the management of upper urinary tract stones in children, including shock wave lithotripsy, percutaneous nephrolithotomy and ureteroscopic treatment.⁽⁴⁾ While these treatment options have become the standard of care in the adult population, this is not the same in pediatric population despite an increasing prevalence of stone disease in children.⁽⁵⁾

In the last decade, technological advancement and miniaturization of instruments have changed the management of urinary stone disease. Since the initial report, percutaneous nephrolithotomy (PCNL) has become accepted as a well-established, minimally invasive procedure in children and adults. However, PCNL may present problems in infants and preschool-age children because of the small size and mobility of the pediatric kidney, friable renal parenchyma, and the small size of the collecting system.⁽⁶⁾

With increasing experience of retrograde intrarenal surgery in adults,⁽⁷⁾ recently, a few reports of successful ureterorenoscopic management of renal stones in children have been published.⁽⁸⁾ However, most of those reports include a significant number of older adolescents. In children, small-volume; non stag horn stones can be effectively managed with the retrograde intrarenal surgery with good outcomes without the need for open surgery or PCNL.⁽⁹⁾

To our knowledge, there are few reports specifically addressing the efficacy of retrograde endoscopic management of intrarenal calculi in the preschool-age children.⁽¹⁰⁾

Stone disease in very young children is often associated with anatomical and metabolic abnormalities or infectious diseases, and the risk of recurrence is

high. These factors make minimally invasive procedures more important in this age group.⁽¹¹⁾

Advances in the design of ureteroscopes and ancillary instruments during the last 15 years have resulted in miniaturization and increased durability of the smaller scopes required for pediatric patients.⁽¹²⁻¹³⁾

Enhancements in video technology coupled with improved optics have increased the ability of the pediatric urologist to evaluate and treat endoscopically the urinary tract in even the smallest patients.⁽¹⁴⁻¹⁵⁾ However further studies with larger number of patients is required to evaluate the role of flexible ureterorenoscopy in the management of upper tract urolithiasis in children.⁽¹⁶⁻¹⁷⁾

AIM OF THE WORK

The aim of this work is to assess the efficacy and safety of flexible ureterorenoscopy for the management of upper urinary tract urolithiasis in children.

PATIENTS

This study will be conducted on 20 children with upper urinary tract stones.

Inclusion criteria:

1. Impacted upper ureteric stones.
2. Renal stones more than 7mm.
3. Failed Extracorporeal Shock Wave Lithotripsy or contraindication to ESWL.

Exclusion criteria:

1. Presence of distal obstruction to the stone.
2. Urinary stone more than 2cm and / or stag-horn stones.

METHODS

1. All patients will be evaluated preoperatively by:
 - Complete history taking.
 - Complete physical examination.
 - Routine laboratory investigation and coagulation profile.
 - Urine culture and sensitivity; if there is infection appropriate antibiotic will be given to sterilize urine before intervention.
 - The site number and size of stone will be determined by:
 - Ultrasound kidneys and bladder.
 - Plain X-ray Kidney Ureter Bladder.
 - Low radiation dose non contrast multislice CT abdomen and pelvis.

After of an informed consent is signed by the parent explaining possible outcome and possible complications of the procedure all children will be treated by flexible renoureteroscopy and holmium laser lithotripsy under general anesthesia, with placement of ureteric stent.

2. Intraoperative evaluation of the procedure will include:
 - Operative time.
 - Laser energy used.
 - Radiation exposure time.
 - Intraoperative complications.
3. Postoperative evaluation will include:
 - Plain KUB.

- Ultrasound abdomen and pelvis.
- Analgesic requirement.
- Postoperative complications.
- Hospital stay.

4. All patients will be followed up a minimum of six months by:

- History taking with special emphasis on pain, fever and haematuria.
- Clinical examination.
- Urine culture and sensitivity.
- Plain X-ray abdomen and pelvis.
- Ultrasound abdomen and pelvis.

RESULTS

The results of this work will be tabulated and statistical analysis of data will be performed.

DISCUSSION

The results of this study will be discussed and compared with those of other workers in the same field.

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ARABIC SUMMARY

الملخص العربي

حصوات الكلي في مرحلة الطفولة نادرة الحدوث في العالم المتقدم، وهي تمثل ١٪ إلى ٥٪ من جميع الحصوات بالجهاز البولي. ومع ذلك، في البلدان النامية، فإن نسبة حدوث حصوات الكلي عند الأطفال هي ٣٠٪ من حصوات الجهاز البولي.

انخفاض معدلات تكوين الحصوات عند الأطفال، وارتفاع معدل إزالة الشظايا الناتجة عن تفتيت الحصوات بالموجات التصادمية في الاطفال والمخاوف بشأن استخدام منظار الحالب الكبير في الحالب ذي العيار الصغير هي العوامل التي تسببت في تخلف اعتماد منظار الحالب لعلاج الحصوات عند الأطفال عن البالغين.

مع انتاج مناظير حالب شبه صلبة صغيرة الحجم والأدوات المساعدة لها، أصبح منظار الحالب خيارا أكثر جاذبية لعلاج حصوات الحالب عند الأطفال. وقد أدى نجاحه في علاج حصوات الحالب السفلي لتوسيع فائدته لعلاج حصوات المسالك العليا.

في هذه الدراسة، قمنا بتقييم مستقبلي لتجربتنا مع استخدام منظار الحالب المرن في علاج حصوات الجزء العلوي من الجهاز البولي (الحالب والكلي) عند الاطفال في قسم المسالك جامعة الاسكندرية.

خضع عشرون طفلا (٢٤ وحدة كلوية) لجراحة تصاعدية داخل الكلي لعلاج حصوات الكلي في هذه الدراسة. وقد تمت الدراسة باستخدام كل من منظار الحالب شبه الصلب و منظار الحالب المرن. وقد تم توسيع فتحة الحالب بواسطة ضغط الماء فقط وتجنب اية توسعة ميكانيكية. تم تفتيت الحصوات في مكانها باستخدام الليزر بدون اي محاولة لاستخراج شظايا الحصوات. في النهاية تم وضع دعامات الحالب في جميع المرضى.

وكانت معدلات نجاح علاج الحصوات بالكأس العلوي بالكلي، والكأس الوسطي بالكلي وحصوات الحالب العليا ١٠٠٪ بعد جلسة واحدة من الجراحة التصاعدية داخل الكلي و معدلات نجاح علاج الحصوات بالكأس السفلي بالكلي ٥٠٪ و ٧٦.٩٪ للحصوات بحوض الكلي بعد جلسة واحدة من الجراحة التصاعدية داخل الكلي. كان معدل نجاح علاج الحصوات بعد جلسة واحدة من الجراحة التصاعدية داخل الكلي ٨٠٪ وارتفعت إلى ٩٥٪ بعد الجلسة الثانية.

في الدراسة الحالية، وجد ان كل المضاعفات حدثت في بداية الدراسة. نحن لم نواجه أي حالة حدوث سلخ بالحالب، كان هناك حالة واحدة حدثت بها إصابة جزئية بجدار الحالب مع عدم وجود تسرب خارجي وتم علاجها بوضع دعامة بالحالب، وكان هناك اثنان من الحالات التي عانت من حمى بعد العملية الجراحية تمت معالجتها تحفظيا.

أيضا، لم تكن هناك حالات التهاب المسالك البولية بعد العمل الجراحي الذي يمكن أن يعزى إلى حجم الحصى الصغيرة، وعدم توسيع فتحة الحالب ميكانيكيا وبروتوكول تركيب دعامة الحالب في كل المرضى. في هذه الدراسة لم يكن هناك اي حالات هجرة للدعامة بالحالب.

لم يعاني أحد من مرضانا من التهاب كلوي بعد إجراء التدخل. لم يكن هناك أي حدوث انخفاض في حرارة الجسم في مرضانا، لم يحدث امتصاص داخل الأوعية الدموية من المحاليل المستخدمة السابق تدفنتها وكان هناك انتعاش سلس من التخدير. لم يكن هناك أي حالات فقدان الدم بصورة كبيرة أو الحاجة إلى نقل الدم.

وقد أظهرت نتائج دراستنا أن استخدام منظار الحالب المرن هو وسيلة آمنة وفعالة لعلاج حصوات الكلي والحالب العليا عند الأطفال. حيث أنه يقلل المخاطر الناتجة عن العلاج و مدة الإقامة في المستشفى، وبالتالي التكلفة الإجمالية للعلاج.

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تقييم أمان وكفاءة استخدام منظار الحالب المرن في علاج حصوات الجزء العلوي من الجهاز
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للحصول على درجة

الماجستير

في

جراحة المسالك البولية والتناسلية

موافقون

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رسالة علمية

مقدمة إلى كلية الطب- جامعة الإسكندرية
إستيفاء للدراسات المقررة للحصول على درجة

الماجستير

فى

جراحة المسالك البولية والتناسلية

مقدمة من

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