Metallic ureteral stent use in obstructive uropathy of neoplastic origin: first experiences in the Hospital Central Militar

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ABSTRACT

Introduction: In obstructive uropathy of neoplastic origin mainly of the inferior third of the ureter, standard procedure is ureteral catheter placement. If it collapses, the next step has been to place a nephrostomy tube. In an attempt to reduce morbidity and improve patient quality of life, new ureteral stent materials and designs have been explored.

Materials and methods: All patients diagnosed with obstructive unilateral or bilateral uropathy of neoplastic origin regardless of survival prognosis were included in the study. Eleven metallic ureteral stents were placed in a total of 5 patients.

Results: Up to the present date 5 patients have been treated for obstructive uropathy secondary to neoplasia and 11 metallic ureteral stents have been placed. Follow-up has been carried out with kidney ultrasound and serum creatinine, with improvement observed in both parameters in all cases.

Discussion: Patient series treated with metallic ureteral stents are small and urinary flow characteristics with the stent in position have not yet been fully studied. An advantage of these stents in relation to traditional catheters is that they are more resistant to extrinsic compression. However, recent studies have shown that

RESUMEN

Introducción: En la uropatía obstructiva de origen neoplásico, en particular del tercio inferior del uréter, los pacientes se trataban habitualmente con un catéter ureteral y cuando éste se colapsaba el siguiente paso consistía en colocar una sonda de nefrostomía. En un intento por disminuir la morbilidad y mejorar la calidad de vida del paciente se han explorado nuevos materiales y diseños de los stents ureterales.

Métodos: Se incluyó en el estudio a todos aquellos pacientes con diagnóstico de uropatía obstructiva de origen neoplásico bilateral o unilateral cualquiera que fuera el pronóstico de sobrevida. En total se incluyó a cinco individuos y se colocaron 11 stents metálicos ureterales.

Resultados: Hasta la fecha se ha tratado a cinco pacien-
tes y se han colocado 11 stents metálicos ureterales, todos en uropatías obstructivas secundarias a neoplasias. El seguimiento de los sujetos se realizó con ultrasonido renal y creatinina sérica y se observó mejoría en ambos paráme-
tros en todos los casos.

Discusión: Las series de pacientes tratados con stents me-
tálicos ureterales son pequeñas y aún no se han estudiado de forma exhaustiva las características del flujo urinario con los stents en posición; no obstante, ofrecen ventajas en relación con los catéteres ureterales comunes dado que

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when tumor volume is very large, flow is not significantly improved.

Experience with metallic ureteral stent use is limited. Further studies showing long-term economic impact will certainly increase their use. In addition, more related physiological studies need to be carried out to determine the real advantage over traditional treatment.

**Key words:** stents, obstructive uropathy, Mexico

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**INTRODUCTION**

The treatment of patients with obstructive uropathy of neoplastic origin is a great challenge for the urologist. These patients have traditionally been treated with ureteral catheter and when it collapsed the next step was nephrostomy tube placement. In an attempt to reduce morbidity and improve patient quality of life new ureteral stent materials and designs have been explored.¹

Certain companies have recently presented other options among which metal alloys have shown greater efficacy for keeping the urinary drain permeable. However, it has not yet been physiologically determined if these options offer similar results.¹ ²

There are no reports in the Mexican literature on the use of metallic ureteral stents. They have begun to be used for several months in the authors’ hospital and the present article is a report on the results observed up to the present date.¹ ³ ⁴

**METHODS**

Double-J metallic ureteral catheter placement is described in patients with obstructive uropathy of neoplastic origin in 3 male and 2 female patients (Table 1). All patients diagnosed with unilateral or bilateral obstructive uropathy of neoplastic origin regardless of prognosis were included in the study. After informed consent was obtained, double-J metallic ureteral catheter was placed in retrograde manner using control fluoroscopy (Imagene 1).

<table>
<thead>
<tr>
<th>Patient</th>
<th>Diagnosis</th>
<th>Laterality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prostate cancer</td>
<td>Bilateral</td>
</tr>
<tr>
<td>2</td>
<td>Cervical cancer</td>
<td>Right</td>
</tr>
<tr>
<td>3</td>
<td>Cervical cancer</td>
<td>Bilateral</td>
</tr>
<tr>
<td>4</td>
<td>Prostate cancer</td>
<td>Bilateral</td>
</tr>
<tr>
<td>5</td>
<td>Prostate cancer</td>
<td>Bilateral</td>
</tr>
</tbody>
</table>

Source: Clinical cases obtained from the urology surgery registrar from January 1, 2008 to July 31, 2008.

The technique can be summarized as follows: Stent sheath is first introduced over the metal guidewire. Once sheath position is confirmed by pyelography the metallic stent is introduced through the sheath. A metallic introducer is used to advance the final part of the stent. Its correct placement is verified through fluoroscopy.

A total of 5 patients were included in the protocol and 11 metallic stents were placed. The 2 female patients presented with cervical cancer (n=2) and the 3 male patients with prostate cancer (n=3) (Images 2 and 3).
RESULTS

Up to the present date 5 patients with obstructive uropathy secondary to neoplasia have been treated and 11 metallic ureteral stents have been placed. In the patient follow-up there has been no report of sepsis, pain, hematuria or re-admittance into hospital in relation to the metallic stents, representing a quality of life improvement. Follow-up protocol included kidney ultrasound and serum creatinine with improvement observed in both parameters (Table 2).

Tables 1 and 2 show there was no stent migration, replacement or malfunction.

DISCUSSION

Obstructive uropathy principally in the inferior third of the ureter is a frequent complication in certain neoplastic diseases and traditionally obliges the urologist to make the decision of placing a double-J catheter or nephrostomy tube especially when tumor volume is large.

For several years different materials have been used in the design of ureteral stents that allow adequate urinary drainage in which flow is not affected by extrinsic compression and morbidity during its use is less than that of a nephrostomy tube.

Patient series treated with ureteral metallic stents are small and urinary flow characteristics with the stent in place have not been fully studied. However, they offer
advantages over traditional ureteral catheters because they have greater resistance to extrinsic compression. However, recent studies have demonstrated that flow is not significantly improved if tumor volume is very large.

The use of metallic ureteral stents is limited to only a few large hospital centers due to the fact that ideally there should be a fluoroscopy table and endourological video equipment available for their placement.

In general the available literature is still scarce and experience with metallic ureteral stents is limited, most likely due to the high cost and technical resources necessary for their placement. However, as experience increases and long-term economic impact studies are carried out they will certainly be used more. Undoubtedly any procedure that can improve patient quality of life will always be of interest and demand critical judgment in the interpretation of its results.

**CONCLUSIONS**

Double-J metallic ureteral catheter placement is safe and simple. It offers a therapeutic opportunity to improve patient quality of life. Long-term studies are required to establish the degree of benefit for kidney function.

**BIBLIOGRAFÍA**