

Are metal ureteral stents indicated in cases of benign upper urinary tract obstruction?

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The placement of any type of stent in the ureter is probably one of the most common procedures in everyday urological care. The main indication for stent insertion is to maintain the patency of the upper urinary tract in cases of chronic or acute intrinsic or extrinsic obstruction of the upper urinary tract. Toward this goal, a variety of configurations, designs, and materials have been utilized since the first introduction of a ureteral “stent” in urological practice by Gibbons back in 1976.^[1] Still, it was not before the introduction of the silicon stent in a double-J configuration by Finney that the use of ureteral stents was popularized.^[2]

However, the widespread use of ureteral stenting has been proven to be far from uneventful. The presence of stents in the ureter has been associated with impeded flow of urine, stent encrustation, and infection as well as inability to successfully maintain patency of the upper urinary tract. Certain modifications in stent design and the use of biomaterials have been implemented in an effort to alleviate some of the above mentioned problems as well as the discomfort and reduced quality of life associated with the presence of indwelling plastic ureteral stents and the subsequent need for periodic stent changes.

In an effort to overcome these issues, indwelling metal ureteral stents were initially introduced for the management of upper tract obstruction. The theoretical advantages of metal stents over silicon ones included reduced encrustation, improved tensile strength and stability, prolonged stent indwell time, and better flow.

Initial clinical experience with the metal stents was

not encouraging. This was due to the high incidence of stent migration, especially with the covered metal stents, urothelial hyperplasia, and encrustation with subsequent stent occlusion necessitating the placement of additional stents. Moreover, most of those metal stents are short semi-permanent stents that are technically difficult to place and occasionally equally difficult to remove.^[3,4]

A possible explanation for the high incidence of adverse events and failure to adequately drain the upper urinary tract may be that in the majority of those studies, metal stents of various designs were exclusively used to treat cases of upper tract obstruction caused by extrinsic ureteral compression due to malignancy where traditional plastic stents had previously failed.^[5]

The introduction of the Ni-Cr-Co alloy ureteral Resonance[®] stent aimed at eliminating the problems associated with the presence of short metal stents. Initial clinical experience with regard to technical success and patency rates were excellent for patients with malignant ureteral obstruction but not so for those with benign causes of upper tract obstruction.^[6]

On the other hand, according to recent studies evaluating the role of indwelling metal stents for the management of benign upper tract obstruction, the Resonance[®] metal stents apart from maintaining upper tract patency are also more cost-effective than the traditional polymer stents mainly due to their longer exchange interval.^[7]

A recent study with the use of electron microscopy and spectroscopy has confirmed the lack of epithelial

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tissue ingrowths and durability of the Resonance® metal stent. Moreover, clinical experience revealed limited pain and discomfort for patients with indwelling metal stents for time periods ranging from 6 months to 3 years.^[8]

The paper published in the earlier issue of the *Indian Journal of Urology* poses the same question: are metal ureteral stents only effective for the management of cases of chronic upper tract obstruction due to malignancy? The data presented by the authors describing their vast clinical experience with the use of metal stents support the use of metal stents for both malignant and benign causes of upper tract obstruction and should be seriously taken into consideration.^[9]

Therefore, there is ground to support that the long-term use of metal stents may be safe and effective in certain cases of chronic ureteral obstruction due to both malignant and benign causes, given the advantages of avoiding the frequent exchange of stents, decreasing hospital costs, and improving the quality of life of patients.

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