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Letter

Percutaneous Nephrostomy Insertion for Malignant Ureteric Obstruction: To Decompress or Not?

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Hydroureteronephrosis may occur secondary to urological (commonly prostate and bladder) or non-urological malignancies, such as colorectal or gynaecological cancers. Resolution of malignant ureteric obstruction (MUO) may be achieved by insertion of retrograde ureteric stents or percutaneous nephrostomy (PCN) [1]. Factors favouring PCN insertion include distortion of bladder or distal ureteric anatomy in bladder malignancy, previous radiotherapy, prior failure of retrograde stenting, and an urgent need to decompress the urinary tract, for example, in sepsis, refractory hyperkalaemia, or uraemia [1]. Where such life-threatening complications arise, an immediate decision is required, and there is reason to insert a nephrostomy unless the patient makes a capacitous decision to decline treatment with the risk of imminent mortality. However, in the absence of these presentations, whilst nephrostomy insertion may improve renal function in a fairly predictable manner in metastatic pelvic malignancy [2], doubt remains as to whether this translates into a mortality or quality-of-life benefit.

On the question of mortality, a recent analysis by Dosanjh et al. [3] which comprised nearly 11,000 patients with various metastatic malignancies identified by Hospital Episode Statistics in England who have undergone PCN insertion, found a median survival time of 124 days. Subgroup analysis found a worse survival still in those who did not undergo further oncological treatment, with a 50% mortality in the 2 months following PCN insertion [3]. This group formed the largest group of those who had nephrostomies inserted for obstructing pelvic malignancy (4986/10,932). Only 10% of the decisions to insert nephrostomies were made in an MDT setting in one multicentre study [2]. In conclusion, Dosanjh et al. [3] suggest "the default of simply decompressing the obstructed urinary tract is no longer acceptable".

Although the aim of readying patients for potential further treatment is well-intentioned, there is a significant burden associated with living with a nephrostomy with high complication rates especially when as was the case for the majority, no further oncological treatment is given. Rates of nephrostomy tubes becoming dislodged or occluded, requiring emergency reinsertion are reported to occur in up to 63% of cases [4]. Those with limited life expectancy keenly feel delays in obtaining a slot on a busy interventional radiology list for repositioning or exchange of their nephrostomy tube. Half of the patients also had at least one episode of pyelonephritis, and around 10% experienced bleeding [4]. Only 10% of the nearly 11,000 patients the England HES data study then had an attempt at anterograde ureteric stent insertion [2], which is important for counselling. We reported that the inpatient management required for these complications results in patients undergoing nephrostomy for malignant ureteric obstruction spending approximately one-fifth of the remainder of their lives in hospital [2].

Nephrostomies may weigh heavily on the lives of these patients living in the community, too, but patient reported outcome measures in this group are poorly studied. A small study demonstrated that less than half of patients felt they gained a useful quality of life after nephrostomy insertion, which was defined as having minimal pain, few complications and the ability to return home for at least two months to participate in family life [4,5]. Management of nephrostomies may also be difficult in the patient's choice of location of death once full palliative care has been decided upon.

However, those with malignant ureteric obstruction are a heterogeneous cohort, comprised of patients from different age groups, with varying co-morbidities and deprivation status across a range of types and stages of malignancy. Those of younger age and with fewer comorbidities were more likely to receive chemotherapy within 6 months of nephrostomy insertion in the large English study [2]. On the other hand, 18.6% of patients undergoing PCN during an emergency admission sadly die within 30 days of insertion [3]. The predicted survival after nephrostomy insertion was also worse in those with low serum albumin; with colorectal, cervical or bladder malignancies; and those with ascites or pleural effusions [6]. Contrastingly, those with hormone-naïve prostate cancer had a mean life expectancy of 16 months after nephrostomy, and this is likely only to improve in the huge advances made in the post-STAMPEDE trial era. Those patients with a new diagnosis of obstructing metastatic pelvic malignancy, especially those with hormone-naïve prostate cancer, are likely to benefit the most.

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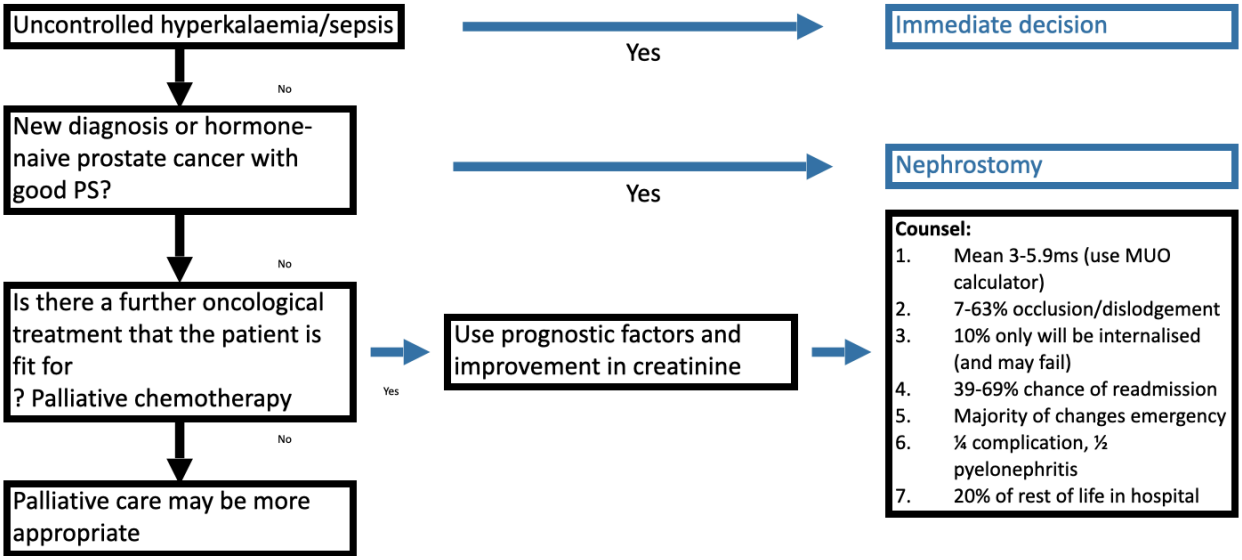


Fig. 1. Nephrostomy flowchart.

Nephrostomies are often sited when polymer stents inserted retrogradely from the bladder fail. New metallic stents including full-length metal stents (e.g., Resonance) and covered metal stents (e.g., Allium) have been described to reduce the risk of occlusion from extrinsic compression. In the largest systematic review of studies with these stents published this year, they showed a higher success rate of maintaining drainage than polymer stents, which was over five times higher (95% CI 1.81–16.45) at three months. At six months the odds ratio of maintaining drainage decreased to 2.70 (95% CI 1.52–4.79). At 12 months there was heterogeneity between the studies but full-length metal stents appeared to outperform covered metal stents when compared with polymer stents as the baseline comparator [7]. However the complication rate such as migration and encrustation was higher with metal stents, and both groups of metal stents come with a higher cost to the healthcare system.

A patient-centred and personalised approach to patient counselling, and multi-disciplinary team discussion in this context is therefore necessary. This is one of many complex decisions and competing priorities faced by patients living with life-limiting disease. It is not surprising that patients and families would feel overwhelmed [3]. We would argue the key factors for informed decision-making are the likelihood of further oncological treatment; whether that is with curative or palliative intent; and how realistic the 10% probability of an attempt at subsequent anterograde stenting is. Furthermore, the patient may wish to understand their individual predicted survival based on their personal characteristics and their cancer type. Such an assessment may now be made using a validated prognostic tool such as the Scottish Malignant Ureteric Obstruction score [6] which can give an immediate estimate of prognosis to inform discussion. Counselling on the incidence of nephrostomy complications as mentioned above is also imperative.

In summary, the decision as to whether to insert a nephrostomy for malignant ureteric obstruction is a multifactorial decision. Simply decompressing an obstructed urinary tract because it is possible, as recommended by the largest study on the topic to date, should not be the default. Unless immediate decisions are required for sepsis or refractory hyperkalaemia, we recommend a multidisciplinary approach, incorporating personalised prognostic calculators, to make recommendations specific to the patient concerned. This data should be presented in a way that is understandable to patients to allow them to tackle this difficult and complex decision. We present a summary flow chart (Fig. 1) with a recommended algorithm to help clinicians make this difficult decision with their patients.

Key Points

• Oncological opinion as to whether further oncological treatment is planned should be considered before the decision to insert nephrostomies in metastatic obstructing pelvic malignancy.

• Decompressing the urinary tract just because hydronephrosis is present is not recommended, and a realistic approach should be considered.

• Calculators now exist to predict life expectancy for a specific patient facing this decision to aid counselling.

• More patient reported outcome measures in the palliative setting may help to see if nephrostomies benefit quality rather than length of life.

Availability of Data and Materials

Not applicable.

Author Contributions

SSF conceived the study. SSF and RG conducted the literature search. RG drafted the manuscript. Both authors revised the manuscript critically for important intellectual content and approved the final version. Both authors have participated sufficiently in the work to take public responsibility for appropriate portions of the content and agreed to be accountable for all aspects of the work in ensuring that questions related to its accuracy or integrity.

Ethics Approval and Consent to Participate

Not applicable.

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Conflicts of Interest

The authors declare no conflicts of interest.

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