

Ureterosigmoidostomy following Radical Cystectomy: Reviewing Four Years of Experience Relating to Complications

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ABSTRACT

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Introduction: Surgical management of carcinoma bladder gives the best results in the appropriate patient. But the quality of life after the procedure is decided by the type of urinary diversion performed. Often the limiting factor in this decision is the operating time and the operating fitness of the patient. Though over years continent diversion is the gold standard we may have to perform ureterosigmoidostomy due to patient factors.

Objectives: to study the morbidity and mortality of a group of patients who underwent ureterosigmoidostomy and were followed up.

Materials and Methods: retrospective analysis of 25 patients who were operated over a period of 4 years for invasive bladder cancer and were followed up on an outpatient basis.

Results: patients were studied for mortality, perioperative morbidity, recurrence of malignancy and development of secondary malignancy. The resumption of normal physical activity and employment was also studied.

Conclusion: Retrospective assessment of our cases done over last four years shows that a satisfactory quality of life can be expected in properly counselled patients following ureterosigmoidostomy.

Keywords: Invasive bladder cancer, Radical cystectomy, Ureterosigmoidostomy, Followup and quality of life

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INTRODUCTION

Ureterosigmoidostomy is one of the earliest forms of urinary diversion.¹ It had been popular for urinary diversion in malignant as well as benign cases, e.g. bladder extrophy. However, it has apparently fallen out of favour in last two decades due to surge of various conduits and continent diversions for the purpose of urinary diversion, in lieu of better post-operative complication profile of these newer procedures. This, mainly, is because of its long-term implications in paediatric patients who received it for benign conditions. However, ureterosigmoidostomy has still retained its place as an option for patients who are ready to accept its complications and for patients not suitable for other diversions, especially in patients with carcinoma bladder.

OBJECTIVE

We are here presenting a review of our patients who

received bilateral ureterosigmoidostomy (USS) after radical cystectomy in last four years. We attempt to derive the post-operative progress profile of patients undergoing USS for malignant condition, so as to identify USS as a possible mode of urinary diversion in this subgroup of patients. By quantifying the post-operative complications and analysing post-operative progress, it is possible to compare the results with other recent forms of urinary diversion in such patients, though no such attempt is made here in our study.

MATERIALS AND METHODS

We have retrospectively studied our post-radical cystectomy cases in context with complications associated with the procedure, patient tolerance and acceptance while on follow-up, for short to medium term duration. A total of 25 cases were operated up on over last four years who needed radical surgery for carcinoma bladder, in the form of radical cystectomy. No patient during the study period has received USS

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for any other benign or malignant conditions. All these patients received ureterosigmoidostomy for diverting urine. As a part of regular oncological and post-surgical follow up, all were put on regular follow up on outpatient basis then after. Those who maintained follow up underwent a history, physical examination, basic blood profile and renal function measurements and an abdominal ultrasound on each follow up visit (every 3 months for first two years). Depending up on the results and/or patient's condition, other specific investigations were asked for. We have reviewed patient data from 2008 up to September, 2013 from patients' operative records, follow up, and a latest personal or telephonic interview and have analysed the data in context with post-operative complications on short term (within 30 post-operative days) and medium term (more than 30 post-operative days).

REVIEW OF LITERATURE

Simon first performed ureterosigmoidostomy in 1852.¹ The initial attempts were marred by high post-operative morbidity and mortality. However, it became popular as an acceptable diversion among urologists only in the last century, after the advent of tunnelled ureteric anastomoses.^{2,3} It remained in use till 1990s, especially for benign condition like bladder extrophy. While compared to ileal conduits, a number of reports have indicated good long-term results from USS even in benign conditions.^{4,5}

Over the later decades, newer methods of urinary diversion, particularly continent diversions, were introduced. With the revelation of serious long-term complications of USS lead to disfavour of USS for urinary diversion. In spite of overwhelming dominance of ileal conduit as the diversion of choice in recent reports,⁶ a number of recent reports suggest USS as a good alternative for urinary diversion^{7,8}

Reports from high volume centres are particularly attractive. El- Leithy T and colleagues have even reported USS as a gold-standard for urinary diversion in bladder malignancy patients. Of 53 patients they followed for a mean of 14 years, none of the patients required any revision surgery, and demonstrated minimal complications with acceptable quality of life.⁷ Another group had 51 patients with a mean follow up of 15.7 years with 94% continent rate and 43% patients showing at least one minor complication from the procedure.⁸ A report from Switzerland has demonstrated well functioning USS with normal or mildly impaired renal functions in majority of the patients

over mean follow up of 50 years.⁹

Scott et al studied a 5% medicare sample from 1998 to 2005 to study complications associated with urinary diversions, which had 80% ileal conduit patients while USS was in a 13% among other diversions.¹⁰ It was noted that downstream complications were common to all diversions and continued to occur even after 5 years of duration. Renal function alteration was seen in a good proportion of patients and across all diversion subgroups. In fact, urinary stones and local wound-related complications were more often seen with continent diversions.

RESULTS AND DISCUSSION

Of the total of 25 patients operated, two patients were untraceable. Of the remaining 23 patients, 21 patients were male and two were female. Three of these patients died in perioperative period. One patient died of myocardial infarction on the day of surgery. Two other patients died of respiratory failure and sepsis in the second week after surgery. Noticeably both were having advanced squamous cell carcinoma.

Three patients were non-smoker including two female patients. Five patients were diabetic, and two of them had hypertension as well. The data of 20 patients was thus collected and analysed by dividing them in two groups – those above 60 years of age (n=9) and those below 60 years of age (n=11). The mean duration of follow up is 13 months, while that of existing survivors is 24 months.

Mortality

Seven patients died while on follow up, with a mean duration of 7 months post-operatively. Four of them had proven recurrence. One patient died of recurrent post-operative complications within 3 months of surgery. This was a recipient of neo-adjuvant treatment and had shown persistent growth after three months of radiation. Rest two patients died of causes unrelated to surgery, and were active at home till then. Five deaths were noted in those above 60 years and four of them were diabetic. Two deaths in younger patients were associated with recurrence.

Recurrence

Five patients had recurrence after radical surgery. Four of the recurrences were within six months, three of which were local recurrence and one was at wound site. Only one of these patients is alive at present and is on oncological follow up.

Perioperative complications

Total ten episodes of minor complications were noted in those below 60 years of age, namely hypotension (3), chest infection (2), bleeding (2), wound infection (1), intra-abdominal collection (1) and hypoproteinemia (1). Among those above 60 years of age, we had total eight episodes- chest infection (3), hypoproteinemia (2), ileus (2) and wound infection (1). All were treated conservatively. Five patients needed prolonged hospitalisation (25%)

Short term complications (within first post-operative month)

In the first month, chest infection and delayed wound healing dominated, each in two patients. One patient had deep vein thrombosis and another had prolonged ileus associated with intra-abdominal collection. One patient had hypoproteinemia with metabolic complications and required intra-venous nutrition supplementation.

Hydronephrosis (n=8, 40%)

Hydronephrosis was detected as diagnosed on follow up abdominal ultrasound. Six had moderate hydronephrosis, with four having bilateral dilatation. Two of these had recurrence. Two had only mild hydronephrosis. On further follow up, two of these patients are being considered for revision surgery for anastomotic stenosis (10%).

Pyelonephritis (n=11, 55%)

The diagnosis of pyelonephritis was made if there was an episode of fever for more than 24 hours, associated with either renal function alteration or changes on ultrasound. Nine had one episode per year and two had more than two episodes per year. One patient has recurrent pyelonephritis with three hospital admissions till date. No other patient needed hospital admission or any active intervention for managing pyelonephritis. 63% (n=7 of 11) of pyelonephritis were associated with hydronephrosis.

Renal function alteration

Serum creatinine assessment was taken as surrogate for renal function. Average rise of serum creatinine was 0.1 mg% to 1.5 mg% over the study period. Major alteration, however, were associated with either distal obstruction or infection only. Mean rise of creatinine was 0.25 mg% in those without hydronephrosis, and 0.8mg% in those with hydronephrosis.

Metabolic Acidosis (n=7, 35%)

All patients are placed on regular, daily oral bicarbonate supplements. Well controlled metabolic acidosis was defined as serum bicarbonate levels more than 23 mEq/L and moderate controlled was defined as serum levels of bicarbonate below 23 mEq/ L while on oral supplements. Seven patients had moderate control, with six in more than 60 years age group, including four diabetic patients. Only one had refractory metabolic acidosis peri-operatively, associated with rectal catheter block.

Post-operative Activity resumption

Majority of patients below 60 years of age became active in first post-operative month only. Only four patients took more than 6 months to be active, two of which has bothersome frequency (10%). Five never resumed activity, three of which had recurrence.

Secondary malignancy

Colonic carcinoma is a known complication to USS patients and the risk of secondary malignancy is realistic. The recommended screening for colonic neoplasia is set as from 5 post-operative year onwards, in an attempt to identify them at earliest. Patients in our study are yet to enter the depicted screening programme and none of them has yet developed any related symptoms or signs.

To summarise, majority of patient has only grade I/ grade II complications. Recurrence has been the major cause of post-operative morbidity and mortality. Diabetes signifies itself as a major factor associated with procedure related complications. 90% of patients are continent and have satisfactory quality of life. Overall, patient satisfaction depends mainly on ability to stay active and socialize, rather than on complications.

The observed pattern of complication has been common with USS patients and is more frequent compared to reported studies including other type of conduits as well. An observational retrospective study from Spain compared 41 cases of ileal conduit with 55 cases of ureterosigmoidostomy between 1985 and 2005. On a mean follow-up of 50 months, no difference was noted between two conduits, similar long term complications.¹¹

CONCLUSION

The high risk of colonic neoplasia following ureter-

osigmoidostomy has made it less suitable for a very long-term urinary diversion. It is also having a higher incidence of metabolic complications. Majority of them are minor, manageable with minimal observation and does not alter the perception of leading a routine life. Retrospective assessment of our cases done over last four years shows that a satisfactory quality of life can be expected in properly counselled patients following ureterosigmoidostomy. Overall, in selected group of motivated patients, ureterosigmoidostomy still occupies its place as a feasible mode of urinary diversion.

END NOTE

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