



UTILITY OF INTESTINAL SEGMENTS IN RECONSTRUCTIVE UROLOGY - EXPERIENCE AT A TERTIARY LEVEL GOVERNMENT SETUP

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ABSTRACT

INTRODUCTION:- in fairly recent years bowel has been used frequently in reconstructive Urology, and has become a very important weapon for a reconstructive urologist for dealing with various reconstructive problems in both pediatrics and adult patients. Due to these weapons there has been a revolution in what a urologist can do whenever he faces a severe anomaly in a child, such as cloacal exstrophy, or reconstruction in an adult patient of bladder cancer.

MATERIALS AND METHODS:- Here we present a series of 19 cases that were operated at Department of Urology, Government General Hospital Guntur from Feb 2017 to Dec 2019. With the aim to analyse various procedures done using intestines, to analyse the complications, to compare the various types of intestinal complications and to compare the results with various studies published.

RESULTS:- Out of 19 cases done at Government General Hospital, Guntur in the past 23 months, we had long term successful outcomes in 18 cases, with 1 case of Mitrofanoff procedure done for recurrent urethral stricture requiring life-long suprapubic cystostomy. In the immediate post-operative period 2 case of Radical Cysto-prostatectomy with ileal conduit, 1 case of augmented cystoplasty using ileum developed surgical site infection. Most common complications in the immediate post-operative period were pain, ileus and electrolyte imbalance namely hypokalemia. In patient where sigmoid was used as the intestinal substitute, the patient had to be kept on irrigation, N-acetyl Cysteine and soda bicarbonate were used as mucolytics. Average post-operative hospital stay for the patients was 18 days. All the patients are still on follow-up and are doing well with no complications.

CONCLUSION:- Intestines are used in many forms as conduits, pouches, augmentation and orthotopic diversion. Various techniques have been described in literature including continent diversion and incontinent diversions. Meticulous care in anastomosis is must in uretero-enteric, intestine to intestine and intestine to thimble bladder.

KEYWORDS :

INTRODUCTION:-

in fairly recent years bowel has been used frequently in reconstructive Urology, and has become a very important weapon for a reconstructive urologist for dealing with various reconstructive problems in both pediatrics and adult patients. due to these weapons there has been a revolution in what a urologist can do whenever he faces a severe anomaly in a child, such as cloacal exstrophy, or reconstruction in an adult patient of bladder cancer. Bowel is frequently used in reconstructive urology for bladder augmentation, bladder replacement, as urethral substitutes. Less commonly intestines may be used as urethral or vaginal substitutes¹. In our part of the world we frequently encounter lot of patients with genito-urinary tuberculosis and also of carcinoma bladder. Hence learning and improving the techniques of use of intestines in reconstructive urology is very important for us.

Materials and Methods:- Here we present a series of 19 cases that were operated at Department of Urology, Government General Hospital Guntur from Feb 2017 to Dec 2019. All the cases were performed free of cost under the Arogyashri Health Scheme of the Government of Andhra Pradesh. With the aim to analyze various procedures done using intestines, to analyze the complications, to compare the various types of intestinal complications and to compare the results with various studies published.

RESULTS:-

we had performed 19 reconstructive surgeries using intestines at at Government General Hospital, Guntur in the past 23 months.

Table 1

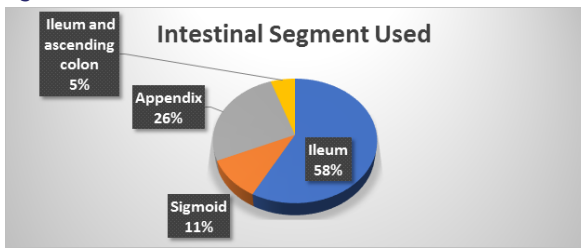
Indication	Surgery	Intestinal Segment Used	No. Of Cases
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1. Neurogenic Bladder	Mitrofanoff Procedure	Appendix	4
2. Multiple failed uretheroplasties	Mitrofanoff Procedure	Appendix	1
3. Thimble Bladder	Augmentation Cystoplasty	Sigmoid	2
4. Thimble Bladder	Augmentation Cystoplasty	Ileum	3
5. Benign tumor of Urinary Bladder	Augmentation Cystoplasty	Ileum	1
6. Extrophy bladder + vaginal Atrophy	Excision of bladder + continent Indiana Pouch + Mc Indoe's Vaginoplasty	Ileum and Ascending Colon	1
7. Carcinoma Bladder	Radical cysto-prostatectomy + Ileal Conduit	Ileum	6
8. Ureteric stricture	Ileal ureter transposition	Ileum	1

Out of 19 cases done, we had long term successful outcomes in 18 cases, with 1 case of Mitrofanoff procedure done for recurrent urethral stricture requiring life-long suprapubic cystostomy. In the immediate post-operative period 2 case of Radical Cysto-prostatectomy with ileal conduit, 1 case of augmented cystoplasty using ileum developed surgical site infection.

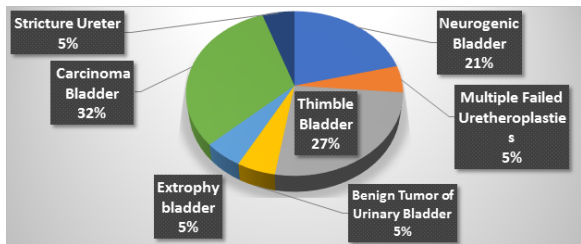
The most common intestinal segment used in our study was Ileum, followed by sigmoid.

Figure 1



The most common indication for the use of these intestinal segments was carcinoma bladder.

Figure 2



Most common complications in the immediate post-operative period were pain, ileus and electrolyte imbalance namely hypokalemia. We also had 2 patients with we had two patients with hyperchloremic metabolic acidosis with low Bicarbonate - below 20mg%, low pH- below 7.4, increased chloride - more than 108 mgs% with hyponatremia. Both patients were effectively treated with sodium bicarbonate. In patient where sigmoid was used as the intestinal substitute, the patient had to be kept on irrigation, N-acetyl Cysteine and soda bicarbonate were used as mucolytic. Average post-operative hospital stay for the patients was 18 days. All the patients are still on follow-up and are doing well with no complications. None of the patients in our study had any anastomotic leaks and stomal stenosis. 15.7% of our patients had minor wound infection but none of them required re-suturing.

DISCUSSION: -

In our 23 months study, we analysed various procedures done by us after proper evaluation of patients. Comparing urologists all over the world, we also prefer ileum as a most suitable segment for bladder substitution and augmentation.² Even in majority of conduits we prefer ileum. The compliance, accommodation and decreased contractility makes ileum the best. When it is unavailable or the utility is not possible, other segments are used.

Literature describes 6% of morbid wound infections such as wound dehiscences³, pelvic abscess and these can be avoided by preoperative proper bowel preparation and avoiding contamination of peritoneal cavity. Our minor infection rate was 15.7% with none of the patients requiring re-suturing. Which is comparable to other international studies.⁴ We attribute this to proper pre-operative bowel preparation and judicious use of antibiotics.

Since ureteric stricture rate is higher in antireflux procedures, we performed Bricker uretero-enteric anastomosis. So far in our follow up studies, with USG, IVU, no stricture case was reported. Many authors have shown that left ureteric strictures, stricture occurring less than one year, strictures 1.5cms or longer have less favorable outcome.⁵ Stomal stenosis usually occurs as a late complication. Till now none of our patients have developed any stomal complications. Although this can be due to the short period of follow-up.

Hyperchloremic acidosis in long term follow up ranges from 10 to 68% in various studies. ^{6, 7} 2 patients in our study had metabolic acidosis which is comparable to these studies. We

did not come across any mechanical intestinal obstruction in our study.

Urodynamic study is done in cases of augmentation cystoplasty patients to assess the functional status of augmented bladder. Majority of the cases with ileum show hypotonic bladder, good compliance, accommodative bladder. Voiding pattern is by abdominal straining. Ileum is superior than colon because of smooth muscle properties, it is less contractile, more compliant, with improved continent rates. Accommodate larger volumes with low pressure. The pressure at maximum capacity is much lower. Anastomosis is easy. But the disadvantage being decreased B12 absorption, decreased bile salts absorption and mucus. In contrast colon is more contractile, less compliant, decreased continent rates. Accommodate low volumes with high pressure. As the capacity increases, pressure also increases. In colon anastomosis, incidence of faecal fistula are higher although we did not come across faecal fistula in our study.⁸

CONCLUSION: -

Intestines are used in many forms as conduits, pouches, augmentation and orthotopic diversion. Various techniques have been described in literature including continent diversion and incontinent diversions. Early complications are avoided by preventive measures, perioperative techniques and postoperative care. Urologist has to acquire the skills of surgical gastroenterologist, vascular surgeon and of a physician. Many patients will need CIC. Physiologically and urodynamically, ileum is superior to colon. Still no substitute is better than God's gift. Natural urinary bladder cannot be conquered by surgeon's bladder (at least till date), still a viable option in many genito-urinary tuberculosis and carcinoma bladder patients. With advancements in technology tissue engineering and genetics may take over.

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