Clinical experience with the use of stomach, ileum, and colon for augmentation cystoplasty.

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Abstract

Traditionally, augmentation cytoplast (AC) has been used to treat low capacity, inadequately compliant, or recalcitrant overactive bladder (OAB). In detrusor over activity, the use of intravenous botulinum toxin and sacral neuromodulator has reduced the number of AC procedures performed. However, AC is still useful in paediatric and renal transplant settings, and it is still a feasible treatment choice for refractory OAB. Laparoscopic and robotic augmentation cytoplast has been developed thanks to advancements in surgical technique. Although ileocystoplasty is the most common treatment, a number of intestinal segments can be employed. Thromboembolism and death are common early consequences, although metabolic disturbances, bacteriuria, urinary tract stones, incontinence, perforation, the requirement for intermittent self-catheterization, and cancer are common long-term issues. The current indications are examined in this article.

Introduction

The purpose of augmentation cystoplasty is to improve bladder capacity and compliance. The main goals of augmentation cystoplasty are to preserve renal function, establish urine continence, and, in some cases, to aid urinary tract rebuilding. Neurogenic bladder dysfunction due to myelodysplasia, extrophy of the bladder, and posterior urethral valves are the most prevalent reasons for bladder augmentation. Many other illnesses, such as TB, interstitial cystitis, numerous surgeries, chemotherapy, and radiation therapy, may necessitate bladder augmentation [1].

Not all patients, especially youngsters, who have augmentation cystoplasty can accomplish complete bladder emptying through spontaneous voiding. The breakthrough and general acceptance of clean intermittent catheterization (CIC) in the mid-1970s allowed for augmentation cystoplasty and continent urine diversion, especially in children.

Traditional enterocystoplasty uses detubularized small or large intestinal segments. Ileum, sigmoid, and cecum segments have all been used, and their dependability has been demonstrated in various studies [2].

Despite the functional effectiveness of enterocystoplasty, clinical experience has shown that the inclusion of small and large bowel and their heterotropic epithelium into the urinary tract can lead to a variety of problems. Several techniques to expand the bladder without using the colon have been developed to prevent some of the negative side effects of enterocystoplasty. Gastrocystoplasty, ureter dilation (naturally or with a balloon), autoaugmentation, and seromuscular enterocystoplasty are some of the procedures available [3].

The detrusor muscle is removed from the dome of the bladder, allowing the epithelium to form a huge diverticulum that can be covered or not with a seromuscular gastric or sigmoid patch as a backup. Furthermore, new advancements in tissue engineering substrates and techniques [4].

Biomaterials have improved our ability to potentially regrow bladder tissue for use in augmentation procedures. For genitourinary tissue engineering, three types of biomaterials have been used: naturally occurring materials like collagen and alginate, cellular tissue matrices like bladder and small intestine submucosa (SIS), and synthetic polymers like polyglycolic acid (PGA) and polylactic acid (PLA). Even Nevertheless, there are major risks associated with using intestinal segments in the lower urinary tract at this time; GI segments remain the gold standard for expanding bladder capacity and improving compliance. Hyperchloremic metabolic acidosis, hyokalemia, hypocalcemia, ammoniagenic encephalopathy, bone demineralization, vitamin B12 deficiency, malabsorption, drug absorption toxicities, growth retardation, mucus secretion, urinary tract infection, urinary calculi, and tumour formation are just a few of the issues that can arise. Hypochloremic metabolic alkalosis and hematuria-dysuria syndrome can complicate gastric cystoplasty [5,6].

As a result, augmentation cystoplasty should only be considered when medical interventions such as anticholinergic drugs and intermittent catheterization have failed to achieve adequate bladder dryness or compliance [7].

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