Transanal Total Mesorectal Excision

"A New Era in Rectal Cancer Surgery"

Essay

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General Surgery

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بسم الله الرحمن الرحيم

وقُلِ اعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ

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Sameh Mohamed Rashwan

Contents

List of Abbreviations

APR	: Abdominoperineal Resection
CEA	: Carcinoembryonic antigen
CRM	: Circumferential resection margin
CT	: Computed tomography
DRE	: Digital rectal examination
DST	: Double-stapled technique
HD	: High definition
NOTES	: Natural orifice transluminal endoscopic surgery
RATS	: Robotic assisted transanal surgery
SEER	: Surveillance, Epidemiology, and End Results
SILS	: Single incision laparoscopic surgery
SST	: Single stapling technique
TAMIS	: Transanal minimally invasive surgery
TATA	: Transabdominal transanal
TaTME	: Transanal total mesorectal excision
TEM	: Transanal endoscopic microsurgery
TEM/TEO	: Transanal endoscopic microsurgery/ operation
TME	: Total Mesorectal Excision

List of Tables

List of Figures

Introduction

Approximately 42.000 patients each year are diagnosed with rectal cancer in the USA. Approximately 8,500 die of the disease. Despite remarkable recent advances in new oncologic agents for the treatment of colon and rectal cancer, cure is almost never achieved without surgical resection ***(Tuech et al., 2011).***

However, the current management of rectal cancer is now more varied and complex because of the new approaches with multimodality therapy and the refinements in surgical techniques. For example, small distal rectal cancers with minimal invasion can be treated with a local excision with or without adjuvant therapy. More proximal or more invasive tumors require a radical resection. The two most common procedures are the low anterior resection (LAR) and the abdominoperineal resection (APR). Extended resections are occasionally required for patients with cancers that invade or adhere to adjoining structures such as the sacrum, pelvic side walls, prostate; or bladder ***(Santos and Hungness, 2011).***

In recent years the aim has been to reduce the impact of surgical trauma. The next logical step for laparoscopic surgery may be natural orifice transluminal endoscopic surgery (NOTES). However, progress has been' slow owing to technical problems in performing these procedures safely ***(Lu et al., 2011).***

By avoiding transabdominal incisions and their related complications; NOTES procedures have a number of potential advantages over the conventional laparoscopic approach for rectal cancer, which is a safe alternative to open surgery. In more technically demanding cases such as patients with bulky tumors, distal rectal tumors and in the narrow male pelvis, conversion remains necessary possibly resulting in increased morbidity ***(Zorron et al., 2012).***

Rectal cancer is invariably approached trans-abdominally, beginning at the proximal rectum: top-to-bottom total mesorectal excision (TME). Recently, a new taTME approach is used to mobilize the rectum transanally by using a single port and endoscopic instruments. Beginning distal to the tumor and working upwards (down- to-up principle), this approach for rectal cancer gives new- options in difficult cases and may reduce the need for conversion ***(Van den Boezemand Sietses, 2011)***.

Transanal Total Mesorectal Excision (taTME) is a new approach to performing minimally invasive rectal resection. It is particularly well suited for patients with locally advanced distal cancer and obesity, where the abdominal approach is challenging. taTME or "bottom- up" TME has been gaining momentum, both in the UK and worldwide ***(Sylla et al., 2010).***

The technique allows dissection of the most difficult part of the TME plane deep down in the pelvis (particularly in male patients or patients with visceral obesity) using a flexible or rigid transanal platform. The perceived benefits of this technique may include also ease of procedure due to better views, decreased operative time, better quality anastomosis and reduction in conversion rates. This appears to be a feasible and safe procedure on preliminary analysis of the current date however larger series are awaited ***(Velthius et al., 2011)***.

It was predicted that 2013 will be the year that transanal approaches to en bloc rectal resection will become accepted and this may “revolutionize the practice of rectal cancer surgery”. This bold prediction by RJ Heald is based on mounting data demonstrating that transanal access for rectal resection is quite feasible ***(Maurer et al., 2011).***

Effectively, this new approach fuses together three fundamental principles in rectal surgery: TME, transanal endoscopic microsurgery (TEM), and transabdominal transanal (TATA). The result is taTME , which can be successfully performed using either TEM or the newer transanal minimally invasive surgery (TAMIS) platform ***(Choi et al., 2013).***

Aim of the work

The aim of this work is to review literature as regards the new modality Endoscopic Transanal Total Mesorectal Excision as a minimally invasive tendency for management of low rectal cancer discussing its role, equipments and future.

Review of Literature

- Pelvic Anatomic Consideration For Transanal Total Mesorectal Excision.

- Evolution of the Surgical Management of Rectal Cancer.

- Surgical Pathology of Rectal Cancer.

- Preoperative Preparation.

- Technique of Transanal Total mesorectal Excision.

- Advantages of Transanal Total Mesorectal Excision.

- Summary & Conclusion.

Chapter 1

Pelvic Anatomic Consideration For Transanal Total Mesorectal Excision.

The rectum is a complex structure, protected from harm by multiple anatomic guardians. These structures not only protect the rectum from external trauma, but also make surgical access exceptionally difficult. This complex organ, essential for socially acceptable elimination of intestinal waste, is most obviously protected by the bony pelvis, but also by the anal sphincters below and by the abdominal contents above ***(Atallah et al., 2014).***

These protective structures, which limit surgical access to the rectum, are responsible for the development of taTME. If access to the rectum were unlimited, there would be no need for taTME. The inability of transanal, transsphincteric, transcoccygeal, and transabdominal approaches to provide safe, reliable exposure to allow for local excision of rectal masses is the stimulus that led to the creation of taTME. A long operating proctoscope, superior optics, specialized instrumentation, and rectal insufflation together have overcome the obstacles of the formidable pelvic structures