

High versus low IMA ligation in laparoscopic rectal cancer resection



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Rectal cancer is a common malignancy leading to high morbidity and mortality rates. The incidence of rectal cancer has been rising dramatically following economic development and industrialization .The incidence of rectal cancer starts to increase after age 35 and rises rapidly after age 50, peaking in the seventh decade, but in our days younger ages are also affected. Currently, rectal cancer is the third leading cause of cancer deaths in both males and females in the United States

Surgery is the main choice of treatment for patients with rectal cancer. The concept of total mesorectal excision (TME), which was introduced by (Heald and Ryall) during the 1980s has significantly improved the outcome for patients with rectal cancer, particularly with regard to local recurrence.

The local recurrence rates were reduced from between 30% and 40% to 5% after TME, Therefore TME has been generally accepted as the gold standard for rectal cancer surgery.

However there are problems with open TME surgery ,mainly pertaining to difficulties in pelvic dissection ,often leading to functional urogenital problems ,especially in male patients, moreover the increased use of coloanal anastomosis has also increased the need for better visualization during pelvic dissection.

So, The laparoscopic approach to rectal cancer may be an attractive alternative for open TME because it offers better visualization, more delicate instrumentation and better tissue handling .This in turn, may lead to an adequate dissection up to the pelvic floor in combination with a better preservation of the hypo gastric plexus and nerves possibly resulting in better functional and oncological outcome.

There are variable surgical modalities according to which level of rectum is affected such as low anterior resection and anterior resection in cases of middle and high third rectal cancer respectively according to the level of peritoneal folding in pelvis and also there is intersphenctric resection & abdomino-perineal resection (APR) in cases of lower third cancer rectum

All these techniques need closure of vascular supply to these area before resection, which is the inferior mesenteric vessels.

There are two techniques for ligation of inferior mesenteric artery.

1st technique is to ligate the artery at its origin from aorta which called (High Ligation).

2nd technique is to ligate the artery after branching left colic artery, preserving it, which called (Low Ligation).

The position of arterial ligation during laparoscopic total mesorectal excision can affect healing and vascular supply at site of anastomosis and vasculature of stoma in cases of APR

Aim of the study

Our study aims to evaluate the difference between high and low ligation of the inferior mesenteric artery as regarding vascular supply at site of anastomosis or at site of stoma and incidence of anastomotic leakage or stricture in laparoscopic total mesorectal excision in cases of cancer rectum

*Our study started already and our primary results on **fourteen** cases of cancer rectum.*

***Seven cases** with high ligation of inferior mesenteric artery.*

***Seven cases** with low ligation of inferior mesenteric artery.*

*After follow up of these cases at least **three** months.*

Follow up is through questionnaire about defecation problems, through clinical examination, and diagnostic imaging if need.

2 specimens after Low ligation of IMA



Specimen after high ligation of IMA



Early results obtained..

	<u>High Ligation</u>	<u>Low Ligation</u>
Number of cases	7 cases	7 cases
Number of lymph nodes retrieval	Up to 27 L.Ns	Not more than 13 L.Ns
Number of complicated cases with necrotic stoma of colostomy	1	-
Number Complicated cases with leakage at site of anastomosis	1	-
Number of complicated cases with stenosis at site of anastomosis	1	-

Our primary results revealed that...

The usage of high ligation technique leads to more complications related to vasculature and healing at site of anastomosis .On the other hand, more lymph nodes were extracted which means more radicality but without any benefit on the oncological outcomes on long term follow up .

The usage of low ligation technique leads to good vascularity and healing at site of anastomosis but with lower number of lymph nodes retrieved without any apparent affection on oncological outcome on long term follow up.

The newly used technique to avoid bad vasculature in high ligation and to avoid low number of dissected lymph nodes in low ligation is

(Functional Low Ligation) which means low ligation of inferior mesenteric artery after preserving the left colic artery but with dissection of the apical lymph nodes till the origin of inferior mesenteric artery from aorta.



***Thank
you.....***