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Review Article

Problem of colorectal cancer in India and issues related to management



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ARTICLE INFO

Article history:

Received 28 July 2015

Accepted 29 July 2015

Available online 14 August 2015

Keywords:

Colorectal cancer

Incidence

India

Surgery

Challenges

ABSTRACT

Colorectal cancer (CRC) in India ranks amongst the lowest in comparison to most parts of the world. However, the sheer population of the country and increasing urbanization, coupled with greater awareness and scope of detection, has resulted in a gradual increase in numbers to the point that it ranks amongst the commonest cancers in India. This review discusses the relevance of specialization in CRC surgery in India and also important aspects of multidisciplinary care such as advances in chemotherapy and radiotherapy. This article also deals specifically with the problem of rectal cancer in young Indians. Furthermore, the impact of minimal access CRC surgery and cutting edge issues in CRC surgery such as approach to complete responders after neo-adjuvant treatment in rectal cancer, concepts in sphincter preservation, and dealing with metastatic CRC are also addressed. Lastly, modern molecular biology with a clinical relevance and modern surgical approaches such as TEMS and TAMIS are also discussed.

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1. Magnitude of colorectal cancer in India

The National Cancer Registry Program (NCRP) of the Indian Council of Medical Research (ICMR) has 28 population-based cancer registries. Furthermore, there are a number of regional cancer centers all over the country with a potential for 55 centers to be linked by a web-based Hospital Based Cancer Registry (HBCR). The NCRP and ICMR form the backbone for information about colorectal cancer (CRC) in India. As per GLOBOCAN 2012 (IARC), the age-standardized incidence of CRC in India is 7.7/100,000 population for

males and 5.1/100,000 for females.¹ These figures are considerably lower compared to western data and even data from far eastern countries. One of the primary reasons for this low incidence could be the Indian lifestyle and a predominantly vegetarian diet. However, the incidence of CRC is gradually increasing in urban India, perhaps indicating environmental and lifestyle influences as major cofactors. However, the sheer population of India makes CRC one of the leading causes of cancer (approx 36,000 cases annually) and cancer-related mortality in this country. In the absence of screening protocols, this number could easily be an underestimate.

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<http://dx.doi.org/10.1016/j.apme.2015.07.017>

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2. Rectal cancer in young Indians

Rectal cancer in the young is a major problem in India. The etiology remains unclear but patients less than 40 years of age present with locally advanced disease (predominantly stage III and above) and both disease-free survival and overall survival is significantly lower compared to those over 40 years of age.² In a recent publication from Tata Memorial Hospital, it was observed that approximately 40% patients undergoing CRC surgery were 40 years of age or lower. Furthermore, the vast majority received neo-adjuvant chemo-radiation with very few patients presenting in earlier stages. Thus, rectal cancer in young Indians is clearly one of the major research questions facing colorectal specialists and warrants further investigation into genetics and tumor biology.

3. Lymph node yield in CRC

Both colorectal surgeons and dedicated pathologists need to be aware that a minimum of 12 lymph nodes should be resected/grossed/reported in the treatment of CRC. This not only ensures surgical quality but also aids in optimal pathology reporting that enables accurate disease staging and further planning of adjuvant treatment. Radical R0 resection by specialized CRC surgeons is the key to improve lymph node yield. In a recent CRC study from Department of Pathology and Surgery at Tata Memorial Hospital, the median lymph node yield was 12.7 with more nodes being reported in the younger ages and more numbers observed in colon resections compared to rectal resections. Furthermore, the yield was more in treatment naïve resections compared to resections after neo-adjuvant treatment. It was concluded that surgical expertise and diligence of pathologist remain the two most crucial factors influencing lymph node yield in CRC resections.³

4. Specialization in CRC surgery

It has been convincingly demonstrated 2 decades ago in Sweden that there is no substitute for specialized CRC surgery, especially low rectal cancer surgery. Specialized surgeons, compared to a general surgeon performing CRC surgery, significantly produce better results in terms of longer disease-free survival, overall survival, reduced rates of permanent colostomy, and lower rates of pelvic recurrence.⁴

Ever since the advent of stapling devices, surgery for very low rectal cancer has evolved remarkably. A good quality total mesorectal resection (TME) combined with a double-stapled low rectal anastomosis is now the standard of care with excellent results in skilled hands and in centers of excellence.⁵ A number of cases, previously considered suitable for abdomino-perineal resection, can now be offered sphincter conservation, thanks to modern stapling devices. Cost remains a major constraint though and consideration for re-usable stapling devices should be the way forward to cut costs and make this technology more widely available in a country that remains largely rural.

India in 2015 has very few dedicated units of colorectal surgery, let alone CRC surgery. The Tata Memorial Hospital,

reporting an audit of 401 consecutive CRC resections with morbidity 12.2% and 1.2% mortality, highlighted the need to specialize and develop dedicated CRC units as an essential step to improve standards of care across India.⁶

5. Impact of multidisciplinary care

CRC, especially low rectal cancer, has firmly evolved into a multi-disciplinary treatment concept. MRI scans are crucial for management of low rectal cancer⁷ and availability of MRI scans remains a problem in this vast country. The German Rectal Cancer Trial in 2004 established the defining role of neo-adjuvant chemo-radiation prior to radical surgery in all rectal tumors that were T3 or above and also in all tumors that were likely to be node positive. It has been observed that patient motivation and compliance is much better in the neo-adjuvant setting prior to surgery rather than in the adjuvant setting. More importantly, neo-adjuvant treatment reduces risk of local recurrence and often helps in sphincter preservation.⁸ High quality radiotherapy units are mushrooming all over India and neo-adjuvant treatment should be widely encouraged for all locally advanced and resectable low rectal cancers. It should also be emphasized that these patients almost always need adjuvant treatment after well-done surgery. Dedicated teams of CRC nowadays comprise of the surgeon, gastroenterologist, pathologist, radiologist, medical oncologist, radiation oncologist, and nutrition and stoma care specialists.

6. Minimal access CRC surgery

While minimal access surgery has made impressive strides across oncology, the biggest impact has been in CRC resections. There have been some landmark trials over the past decade and they all have essentially concluded that laparoscopic colon cancer surgery is as good as conventional surgery with some benefits such as reduced blood loss and hospitalization. The evidence has not been very compelling as far as rectal cancer surgery is concerned.⁹ However, the evidence is mounting favorably for abdomino-perineal resections and even for earlier stages of low rectal cancer treated by laparoscopic low anterior resection. It is estimated that a surgeon needs to perform approximately 20 advanced laparoscopic colorectal procedures to negotiate the learning curve. Thus, this progress in science and technology needs to be matched by appropriate training opportunities for the upcoming generation of CRC surgeons.¹⁰ Tata Memorial hospital recorded 3.2% laparoscopic CRC resections in 2010. This number has now increased to 36% in 2014. The advent of Robotic technology has added another exciting dimension to minimal invasive CRC surgery.

7. Recent concepts in CRC

7.1. Complete responders after neo-adjuvant chemoradiation: operate or observe?

In low rectal cancer, a complete response after neo-adjuvant chemoradiation poses a dilemma to the clinician. On the one

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