Surgical Approach to Gastric Cancer: Laparoscopic Gastrectomy with D2 Dissection and Omentum Preserving for Advanced Gastric Cancer. Debate is Still Open

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Introduction

Gastric Cancer (GC) nowadays represents one of the most common tumors, as it is the fifth malignant tumor worldwide. It is interesting to notice that this tumor has a different impact depending on geographic areas: Asia has the greatest incidence over European countries, for which screening protocols on the general population are needed. Worldwide different incidences have led to different medical and surgical approach to the treatment of gastric cancer: in Eastern countries surgery plays the first and most important role, according to the prevailing early-stage and locally advanced stage diagnosis; while in low-incidence areas, such as Europe and US, a multidisciplinary surgical and oncological approach with neo-adjuvant or adjuvant chemotherapy is preferred to reach oncological radicality, especially in the advanced disease. Although chemotherapy is an important stage in GC’s management, surgical treatment is widely recognized as the main therapeutic option to guarantee the patient’s cure.

Body

Our approach to GC is based on standardized international protocols, literature evidences and clinical experience: the technique we perform for both early and advanced gastric cancer is a laparoscopic total or subtotal resection associated to a D2 lymphadenectomy without omentectomy. When required, neoadjuvant or adjuvant chemotherapy is also accomplished by the oncologic division. Over the past 20 years, surgical oncology research aimed at improving the prognosis of patients with gastric cancer. It is now widely accepted that laparoscopic surgery compared to the laparotomic approach presents huge advantages, regarding the postoperative course and the rate of complications; allows performing the same operation with less physical distress and discomfort for the patient. Although the literature has provided evidence regarding oncological safety and feasibility of laparoscopic surgery for Early Gastric Cancer’s (EGC) treatment; the debate on the treatment of Advanced Gastric Cancer (AGC) with minimally invasive technique remains still open. In our casuistry, we perform laparoscopic surgery both for EGC and AGC when possible, as we strongly believe that laparoscopic approach in the hands of experienced surgeons provides the same oncological outcomes, thanks to the development of new techniques and modern laparoscopic instruments, which allow the same radical extension of the resection avoiding the disadvantages of the open technique. Mostly, patients who undergo laparotomy develop enormous physical distress, with an increase in medical complications such as pneumonia or cardiovascular diseases; moreover, worse pain control deriving from laparotomy prevents a rapid mobilization, causes a greater hospitalization and therefore a worse postoperative course. It is also well demonstrated that the lymph node involvement is the main negative prognostic factor after potentially curative resection: extended lymph nodes removal is considered critical in GC surgery and the number of harvested lymph nodes is a direct measure of the quality of surgery. Lots of studies have shown how D2 lymphadenectomy provides better local control of the disease, allows accurate staging, improves survival and avoids the stage migration phenomenon without increased complications: D1 lymphadenectomy do not guarantee an adequate oncologic disease control and D3 lymphadenectomy is associated with complications without an increase of patients’ survival. According to EBM, every total or subtotal gastrectomy we perform for cancer is associated to a D2 lymphadenectomy in order to reach a total tumor resection even if there is no radiological or macroscopic evidence of lymph nodes involvement. Besides, the usefulness of a complete omentectomy, regardless of the tumor stage, is still an open subject of discussion: there is no agreement regarding the value of omentectomy in GC surgery between the European, American and Japanese guidelines. It is believed that total omentectomy is essential to obtain a radical cancer resection in advanced GC surgery, as it leads to a complete tumor cells removal, even if there are undetectable microscopic infiltrations of the omentum. Despite of these data, we prefer to perform an omentum-preserving gastric surgery: we experienced that patients undergoing omentectomy are more vulnerable to peritoneal infections, and present worse clinical outcomes. In particular, in our experience after more than 10 years of laparoscopic gastric cancer surgery, patients with omentum-preserving had a lower incidence of relapse than patients with omentectomy (40% vs 57%, p=0.002). It is interesting to notice that omentectomy increases the risk of postoperative complications in our statistical analysis. Theoretically, the residual omentum after a partial omentectomy might fill up some anastomotic microleaksages by adhesions to the inflamed bowel. These events could derive from the protective action of the omentum at an inflammatory level, which would limit any abdominal inflammatory events without causing them to lead to systemic or surgical problems. The decision to achieve this kind of surgery is based on the important role the greater omentum plays in the peritoneal primary defense: it reduces intestinal adhesions and prevents free peritonitis; furthermore, it has been reported that long-term overall survival does not differ between patients undergoing total or partial omentectomy. In addition to this, some studies state that macrophages...
residing within the omentum might play an important role in clearing minimal residual disease or free peritoneal tumor cells, therefore, a complete omentectomy may impair the anti-tumor immune response.

**Conclusion**

In conclusion, laparoscopic treatment of gastric cancer with D2 lymphadenectomy is safe and feasible, both for EGC and for AGC as widely reported in the literature data. The debate is still open regarding omentum removal or preserving as further studies are needed to build standardized programs of treatment for GC. In our casuistry we reported a reduction of the recurrence rate of relapse associated with better clinical outcomes in patients undergoing omentum preserving surgery.