

SUBTOTAL GASTRECTOMY WITH CURATIVE AND RADICAL INTENT FOR ANTROPYLORIC GASTRIC CANCER, WITHOUT USING LIGATURES

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Abstract: Introduction: Surgery has an important role in the curative therapy of gastric cancer along with multimodal strategies. The paper aims to highlight the advantages of using the LigaSure devices (LigaSure Atlas 20 cm and LigaSure Small Jaw) in performing "en bloc" subtotal gastrectomy and lymphadenectomy. Materials and methods: We present the case of a 48 year old patient admitted in the Surgical Clinic I, Emergency County Hospital Tîrgu Mureș, with a diagnosis of antral gastric cancer. We performed a subtotal gastric resection (4/5) without using ligatures, and "en bloc" D1 lymphadenectomy, using for hemostasis and lymphodissection LigaSure devices (LigaSure Atlas 20cm, LigaSure Small Jaw). Results: The postoperative radiologic control showed anastomotic complex functionality. The patient's postoperative evolution was favourable and the histopathological findings confirmed the diagnosis of undifferentiated antropyloric gastric carcinoma(pT3N2). Conclusions: The advantages of using LigaSure devices in gastric cancer surgery are: D1 and "extended" D1 lymphadenectomy, efficient haemostasis and lymphostasis, subtotal gastric resection and "en bloc" lymphadenectomy.

Cuvinte cheie: gastrectomie subtotală, limfadenectomie D1, LigaSure

Rezumat: Introducere: Tratatamentul chirurgical al neoplasmului gastric reprezintă o verigă importantă în terapia cu viză curativo-radicală. Lucrarea de față propune sublinierea avantajului utilizării penselor LigaSure (LigaSure Atlas 20 cm și LigaSure Small Jaw) în vederea realizării unei gastrectomii subtotale și a limfadenectomiei "en bloc". Material și metodă: Prezentăm cazul unui pacient de 48 de ani internat în Clinica Chirurgie I Tîrgu-Mureș, cu diagnosticul de neoplasm gastric antral pentru care se practică gastrectomia subtotală (4/5) "fără ligaturi" cu limfadenectomie D1 "en bloc", folosind pentru disecție și hemostază pense de tip LigaSure (LigaSure Atlas 20 cm și LigaSure Small Jaw) Rezultate: Controlul postoperator cu substanță de contrast arată funcționalitatea complexului anastomotic. Evoluția postoperatorie este favorabilă, examenul histopatologic confirmă diagnosticul de carcinom antro-piloric nediferențiat, stadiul pT3N2. Concluzii: Printre avantajele utilizării LigaSure în chirurgia gastrică precizăm: posibilitatea limfadenectomiei D1 și D1 "extinsă", hemostază și limfostază eficientă, ridicarea "en bloc" a specimenului rezecat împreună cu grupele limfatice.

INTRODUCTION

In Romania, gastric cancer is a common form of malignant involvement of the digestive tract, with an average prevalence of 2.9 per 100,000 people.(1) The increased addressability and accessibility of patients to upper digestive endoscopy services, in recent years, have made possible the discovery of a growing number of cases, even in early stages. In Europe only 10-15% of cases are diagnosed at an early stage, a situation that differs from Asian countries, where upper gastrointestinal screening programs are helping the discovery of gastric neoplasms in early forms in almost half of the cases.(1) Surgery has an important role in gastric cancer curative therapy along with multimodal strategies, with a 5-year survival rates of only 20-25% and a mean survival time of 24 months, according to the application of these forms of multimodal therapy (adjuvant and neoadjuvant chemotherapy, adjuvant and neoadjuvant radiotherapy or combined radio-chemotherapy treatments).(2,3) Even if it has been over 130 years since the first gastric resection performed for gastric cancer (Th. Billroth-1881), the present surgical approach for the treatment of this

disease, remains a necessity. Although, the indications for the type of gastric resection and the level of lymphadenectomy to be performed, are still needed to be discussed. Antral and antropyloric tumours can be treated performing a subtotal gastrectomy (4/5), but the therapeutic and curative value of the treatment is conditioned by the histologic negative resection margins (R0).(4) The value of D1 (stations 1-6) and D2 lymphadenectomy (7-12) regarding the survival prognosis is well known, the Japanese authors routinely perform D2 lymphadenectomy, while European authors are performing D2 lymphadenectomy only for the cases exceeding the T3- stage for gastric cancer.(5) In our opinion D2 lymphadenectomy is associated with an increased rate of postoperative morbidity and mortality, compared with the D1 type. So, for tumours that do not exceed 3-4 cm in diameter, leaving the gastric serosa intact, we prefer performing D1 lymphadenectomy. The aims of the present paper are not to quantify the value of lymphadenectomy associated with subtotal gastrectomy for distal gastric cancer, but to highlight the advantages of using the LigaSure type devices (LigaSure Atlas 20 cm and LigaSure Small Jaw) in

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performing “en bloc” subtotal gastrectomy and lymphadenectomy. The reduced operative time, efficient haemo and lymphostasis achieved by sealing the vessels and last but not least, reducing intraoperative septic time, are just some of the technique’s advantages.

CASE REPORT

Between 15.01-01.06.2013, in Surgical Clinic 1, Emergency County Hospital Țirgu-Mureș-Romania, were performed 8 subtotal gastric resection (4/5) for antropyloric gastric cancer, using for hemostasis and lymphodissection the LigaSure sealing device (LigaSure Atlas 20cm and LigaSure Small Jaw), without intraoperative use of any other method for achieving hemostasis (“no ligatures”). We present the case of the first patient in this series, operated with “no ligatures”, a man aged 48, admitted to our service between 15.01-28.01.2013 with appointment, having the diagnosis of gastric antral cancer. On admission the patient reported postprandial abdominal discomfort, abdominal distension, belching, postprandial vomiting with unorganized schedule, and also marked weight loss (about 28kg in the past 6 months). The patient’s comorbidities are represented by high blood pressure (stage III), pulmonary chronic obstructive disease (stage II / III), under chronic medical treatment with favourable therapeutic response.

The present disease had an insidious onset with 3 months before admission to our service, when the patient was initially admitted to a gastroenterology service where upper digestive endoscopy was performed and the diagnosis of bulbar ulcer with pyloric stenosis was established. The patient received medical treatment for the ulcerous disease and *Helicobacter Pylori* infection (Amoxicilin, clarithromycin and Esomeprazole) with ineffective response. The endoscopic reevaluation with biopsy establishes the diagnosis of signet ring cells gastric carcinoma, and the patient is guided to our service for surgical treatment. The physical examination reveals the abdominal level above the xiphoid-pubic plane, without the presence of postoperative scars. In the left hypocondrium the rippling sign was sketched. Laboratory results show all values within homeostasis range, with a proteinemia of 6.7 g%. The CT-scan and abdominal ultrasound highlights the presence of homogeneous hepatomegaly and the presence of adenopathies adjacent to the lesser curvature of the stomach and the celiac trunk, with dimensions of approximately 22 mm, without the presence of metastatic disease (CT Protocol 4756 / 12/20/2012, Ultrasound No. 57 / 15.01.2013).

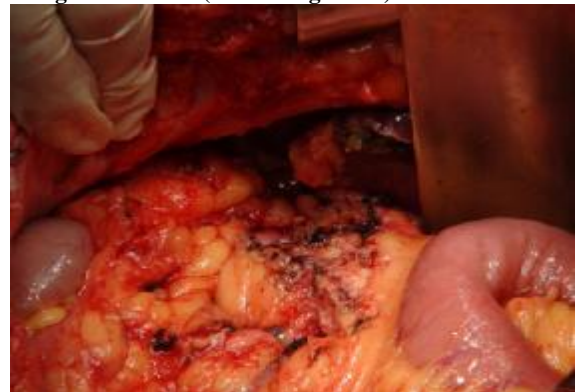
On 15.01.2013 we perform surgery through a xifoumbilical laparotomy, under general anesthesia with oro-tracheal intubation. The intraoperative exploration reveals the presence of an antropyloric tumoral mass (3/3 cm) with pyloric stenosis and subserosal extension (T3-intraoperative stage). The loco-regional exploration shows the presence of the lymph nodes along the lesser curvature of the stomach, celiac trunk and hepatic hilum (N1-N2 intraoperative stage). The absence of metastatic disease in the peritoneal cavity, liver and lungs, makes us to decide for an intervention with curative and radical intent. The materials used were in the small kit for abdominal surgery, LigaSure sealing devices (LigaSure Atlas 20 cm), the suture materials and classic forcepses were used only for achieving hemostasis during the anastomoses and laparotomy. We performed initially the colo-epiploic detachment, the duodeno-pancreatic mobilisation (Kocher-manoeuvre) and performed dissection of the lesser and greater curvature of the stomach using the LigaSure Atlas 20 cm device. We used the LigaSure device to seal the gastroepiploic vessels, the left and right gastric vessels, and the gastroduodenal artery (figure no. 1).

Figure no. 1. The left gastric artery being sealed and sectioned with LigaSure



We performed D1 lymphadenectomy with extent to celiac trunk and hepatoduodenal ligament, finally we were able to remove the gastric specimen “en bloc” with 1-6, 9, 12 lymphnode stations (figure no. 2).

Figure no. 2. D1 “extended” lymphadenectomy completed with LigaSure device (without ligatures)



The duodenal stump was closed using the Schiassi tripartite technique and a Schoemaker subtotal gastric resection (4/5) was performed. To restore the digestive circuit we performed a Billroth II gastro-jejunal transmesocolic termino-lateral anastomosis (figure no. 3) with Braun fistula at the root of the omega loop.

We inserted a juxta-anastomotic drainage, led through the Winslow hiatus.

Figure no. 3. Transmesocolic restoration of digestive tract in Billroth II procedure with omega loop and Braun fistula



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The postoperative evolution was favourable, the patient being discharged on the 13th postoperative day. We mention that the drain tube was shortened on day 3 and removed on postoperative day 5, the amount of secretions were moderate at first (200ml- serosanguineous) and then minimum (25-30 ml/24h). On postoperative day 10 we examined the functionality of the anastomotic complex (contrast enhanced radiologic control), the result showed full anastomotic complex functionality and we performed abdominal ultrasound which confirmed the lack of haematic or lymphatic secretions in the peritoneal cavity.

Histopathological findings confirmed the diagnosis of undifferentiated antropyloric gastric carcinoma (figure no. 4), staged pT3N2 (Histopatology report No. S531362-373/11.02.2013). After being discharged the patient's evolution was favourable, in the present days he is receiving postoperative cancer therapy.

Figure no. 4. Endoluminal macroscopic appearance-surgical resection specimen



D2 lymphadenectomy (in the classical manner involving splenectomy and left pancreatectomy) was not found to be superior to D1 lymphadenectomy regarding long term survival and is burdened by a high morbidity and mortality.(6) D2 lymphadenectomy without splenectomy and pancreatic resection, doesn't show a morbidity and mortality higher than the D1-type does, and is able to improve the prognosis for patients in stage II and IIIA of the disease.(7,8) Using the LigaSure devices for the cases we performed subtotal gastric resection, allows an "extended" D1 lymphadenectomy, including the stations 9 and 12 while preserving the spleen.

The average operative time in our 8 cases, was 90 minutes. In all the cases we used a transmesocolic gastrojejunal anastomosis with an omega jejunal loop with a Braun fistula, because our experience has proven the possibility to change an omega loop anastomosis into an "a la Roux" variant in case of anastomotic fistula.

Using the LigaSure device for preparing an "Y" anastomosis is easy and we are not contraindicate it, if this is an option to choose. The average amount of serosanguineous secretions through the drainage tubes on the first day was 180-200ml/24 hours, reducing 72 hours after surgery.

These results show the effectiveness of haemostasis and lymphostasis using the LigaSure Atlas 20 cm and LigaSure Small Jaw devices.

Furthermore, using the LigaSure Small Jaw forceps, allows the substitution of classic forceps used for dissection (Pean forceps, dissecting forceps, mosquito forceps) and avoids unnecessary handling and changing instruments between the operator and the helping nurse (figure no. 5).

Figure no. 5. Surgical instruments used (LigaSure Atlas 20 cm)



CONCLUSIONS

The advantages of using LigaSure devices in gastric cancer surgery with curative and radical intent are: shortening the operative time, D1 and "extended" D1 lymphadenectomy to lymph node group 9 and 12 with spleen preservation, achieving efficient and durable haemostasis and lymphostasis, decrease of intraoperative septic times, the possibility of "en bloc" resection of the specimen with the lymph node groups, "airing" the kit for large surgery interventions.

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