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## **CLIPPING OF THE ELEMENTS OF THE GALLBLADDER NECK TAKING INTO CONSIDERATION PATHOMORPHOLOGICAL RESULTS IN PATIENTS WITH ACUTE CALCULOUS CHOLECYSTITIS IN COMBINATION WITH CHRONIC VIRAL HEPATITIS**

**A. O. Kolotvin, L. I. Kolotvina**

**Odessa National Medical University, Odessa, Ukraine**

## **КЛІПУВАННЯ ЕЛЕМЕНТІВ ШИЙКИ ЖОВЧНОГО МІХУРА З УРАХУВАННЯМ ПАТОМОРФОЛОГІЧНИХ РЕЗУЛЬТАТІВ У ХВОРИХ ГОСТРИМ КАЛЬКУЛЬОЗНИМ ХОЛЕЦИСТИТОМ У ПОЄДНАННІ З ХРОНІЧНИМИ ВІРУСНИМИ ГЕПАТИТАМИ**

**A. O. Колотвін, Л. І. Колотвіна**

**Одеський національний медичний університет, м. Одеса, Україна**

### **Abstract**

In abdominal surgery, the problem of combined pathology of the abdominal cavity, which according to WHO, is diagnosed in 30% of patients, is very urgent. Prevention of complications during LCE is one of the important tasks of the ACC treatment, which requires the use of rational modern technical approaches, especially at the stage of clipping elements of the gallbladder neck. The effect of the polymer clips on the tissue is less pronounced and widespread than when using metal clips. All this, especially the absence of the epithelial

tissue and the preservation of cells of fibroblasting diferon in the area of application of polymeric clips, will promote the development of conditions for rapid development of the scar tissue there. The stated above demonstrates the safety of polymeric clips, therefore, it is expedient to use them in comorbid patients, namely, in ACC in combination with CVH.

**Keywords: acute calculous cholecystitis, laparoscopic cholecystectomy, polymeric clips.**

### **Introduction.**

Surgical treatment is the main method of treating patients with acute calculous cholecystitis (ACC). Currently, laparoscopic cholecystectomy (LCE) is the operation of choice in this category of patients and a rather safe type of surgical intervention. However, it is necessary to take into account the peculiarities of the course of modern diseases, namely the presence of comorbid states. In abdominal surgery, the problem of combined pathology of the abdominal cavity, which according to WHO, is diagnosed in 30% of patients, is very urgent [1]. One of the pathogenetic mechanisms of development of cholelithiasis and its complicated forms are chronic viral liver affection, which should be taken into account during LCE. Knowledge of the causes of possible complications and technical disadvantages will prevent them, especially in such a severe category of patients as patients with ACC in combination with chronic viral hepatitis (CVH). Prevention of complications during LCE is one of the important tasks of the ACC treatment, which requires the use of rational modern technical approaches, especially at the stage of clipping elements of the gallbladder neck. In recent years, new technologies have been introduced into surgical practice, including those for clipping of the anatomical structures. With every passing year, the number of information on its application increases worldwide. There has been a great interest in the use of polymer clips in various directions of minimally invasive surgery over the last years [2, 3, 4], including those used for clipping elements of the gallbladder neck during LCE [5, 6, 7]. At the same time, there is not enough information available in the literature on their use in patients with CVH.

### **MATERIAL AND METHODS**

The Aim of the study was to investigate f morphological changes of the tissues in the area of application of the metal and polymer clips during laparoscopic cholecystectomy in patients with acute calculous cholecystitis with chronic viral hepatitis.

82 patients received surgical treatment for ACC in combination with chronic viral hepatitis at the surgical departments of the Military Medical Clinical Center of the Southern Region during the studied period from 2012 to 2017.

The fragments removed during the surgical intervention of the gallbladders with ducts (in the nearest time from the clipping) were taken for the morphological study from 59 patients suffering from ACC with CVH, 17 of them were clipped with metal clips and 42 of them clipped with polymer clips. The area with a clip and 0.3 cm of the surrounding tissue was fixed in a sufficient amount of 10% neutral solution of formalin. Before the standard procedure for preparing paraffin blocks, the clip was taken off. The sections made were stained by Van Gyzon, with hemotoxylin and eosin according to the standard techniques. To study morphological changes, light microscopy was used.

## **RESULTS**

In our study, we paid attention to the analysis of the causes of the development of such complications as cutting through the structures of the bile duct with the clip with further development of bile leakage.

The number of cuttings through with a metal clip of the bile duct during LCE was detected in 31 (3.1%) patients for the period from 2012 to 2014. In 23 (74.2%) patients, this complication was found intraoperatively and resolved by repeated clipping, while in 8 (25.8%) cases it was diagnosed in the postoperative period. In patients with ACC in combination with CVH, cutting through the elements of the gallbladder neck was noted in 1 (4.3%) patient in the period from 2012 to 2014. The analysis carried out during the period from 2015 to 2017 established cutting through with metal clips of the bile duct during LCE in 9 (2.6%) cases, among which in 7 (77.8%) patients this complication was diagnosed intraoperatively and eliminated by repeated clipping, and in 2 (22.2%) patients there was bile leakage, which developed in the postoperative period and was eliminated conservatively.

Thus, when clipping the elements of the gallbladder neck with metal clips cutting through the bile duct was detected in 40 (2.96%) patients for the period from 2012 to 2017. At the same time, during the application of polymer clips there were no occurrences of this complication.

One of the most important tasks during surgical intervention is the use of the most minimally traumatic techniques, especially in the presence of CVH. On microscopic examination of the fragments of the walls removed during surgical intervention of the gallbladders with ducts in patients with ACC with CVH in ligation of the bile duct with metal clips during LCE in the area of their application, there is rather tight compression of the

opposite walls of the duct. This leads to the deformation, tissue compression, and the development of ischemia in the clipping area. Mechanical pressure on the tissue and ischemia of the region trigger the necrotic processes. Morphologically, manifestations of paranecrosis, necrobiosis and sometimes necrosis are observed. The mucous membrane in the area of tight compression, which is practically not differentiated under the clip, is characterized by changes in the connective tissue, namely, defibering, swelling, occasional consolidation and thickening of the collagen fibers. Swelling of the mucous membrane tissues is noted in most cases, and in some cases, there is swelling of all layers of the wall. In addition, there is a focal or diffuse inflammatory infiltration. Microscopic examination of the fragments of the walls removed during surgical intervention of the gallbladders with ducts in patients with ACC with CVH with application of the polymeric clips during LCE showed a very tight but uniform compression of the opposite walls of the duct. When applying polymer clips in the same way as in the application of metal ones, there are widespread ischemic processes, swelling in the areas under the clip, but they are accompanied by good preservation of the cellular elements. The effect of the polymer clips on the tissue is less pronounced and widespread than when using metal clips. All this, especially the absence of the epithelial tissue and the preservation of cells of fibroblasting diferon in the area of application of polymeric clips, will promote the development of conditions for rapid development of the scar tissue there.

### **CONCLUSIONS**

The presence of CVH in a patient can not but affect the morphological state of his gallbladder and bile duct. This is due not only to the close proximity of these organs, their functional unity, but also to the overall effect of the chronic inflammatory process in the body. In this case, we speak about the additional effect of CVH on the activity, nature of the course, the development of complications in acute calculous cholecystitis, which should be taken into consideration and used in the surgical intervention of those technical capacities that will contribute to prevention of complications. The stated above demonstrates the safety of polymeric clips, therefore, it is expedient to use them in comorbid patients, namely, in ACC in combination with CVH.

### **REFERENCES**

1. Aliyev Yu.G. (2013). Minimally invasive interactions in surgical treatment of complicated gallstone disease [Aliyev YU.H. Minimal'no invazyvni vzayemodiyi v khirurhichnomu likuvanni uskladnenoyi hovchnokam"yanoyi khvoroby.] *Khirurgiya*, 5, 73-75.

2. Aminian A. Hem-o-lok clip is safe in minimally invasive general surgery: a single center experience and review of data from Food and Drug Administration / A. Aminian, Z. Khorgami // *Journal of Minimally Invasive Surgical Sciences*. – 2012. – № 1 (2). – P. 52-57.
3. Laparoscopic appendectomy using a single polymeric clip to close the appendicular stump / [L.I. Partecke, W. Kessler, W. von Bernstorff et al.] // *Langenbeck's Archives of Surgery*. – 2010. – Vol. 395, № 8. – P. 1077-1082.
4. Meng M.V. Reported failures of the polymer self-locking (Hem-o-lok) clip: review of data from the Food and Drug Administration / M.V. Meng // *Journal of Endourology*. – 2006. – Vol. 20, № 12. – P. 1054-1057.
5. Hem-o-lok clip found in common bile duct after laparoscopic cholecystectomy and common bile duct exploration: a clinical analysis of 8 cases / [L. Yahui, J. Bai, W. Yingchao, W. Guangyi] // *International Journal of Medical Sciences*. – 2012. – Vol. 9, № 3. – P. 225-227.
6. Mohammadreza Seyyed majidi, Seyed Ashkan Hosseini, Shahin Hajiebrahimi, and Jamshid Vafaeimanesh Hem-o-Lok Clip in the First Part of Duodenum after Laparoscopic Cholecystectomy Hindawi Publishing Corporation Case Reports in Gastrointestinal Medicine Volume 2013, Article ID 251634, 3 pages.
7. The safety of hem-o-lock clips at donor nephrectomies / [N. Ay, B. Dinc, A. Dinckan et al.] // *Annals of Transplantation*. – 2010. – Vol. 15, № 1. –P. 36-39.