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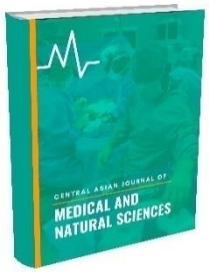

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Views on "Postcholecystectomy Syndrome"

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Abstract: Gallstone disease (GBS) is one of the most common diseases of modern man. It ranks third after cardiovascular diseases and diabetes mellitus. In developed countries cholelithiasis affects 10-15% of adults.

In recent years the majority of these surgeries are performed using minimally invasive techniques (small-access surgery, endovideosurgery, transluminal surgery). As the number of surgeries on ALS is constantly growing, the number of patients with various postoperative problems is increasing accordingly. According to different authors, 1-2 of every 10 operated patients after cholecystectomy continue to experience discomfort of the gastrointestinal tract, pain, digestive disorders, repeated painful attacks. Gastroenterologists group such symptoms under the term "postcholecystectomy syndrome" (PCES). Recurrence of pain in half of the cases occurs within the first year after surgery, but it can also occur in the long term.

Keywords: postcholecystectomy syndrome, gallbladder, cholangitis, external biliary fistula.

Introduction. The term PCES was introduced in 1930-ies by American surgeons and is used till nowadays. It unites a big group of pathological conditions of hepatopancreatoduodenal zone, which existed before cholecystectomy, were accompanied by cholecystitis, aggravated or appeared after the surgery. This association is largely due to the fact that when a patient comes back with complaints after undergoing cholecystectomy, it is rarely possible to make a correct diagnosis without a multicomponent, comprehensive examination. In this case a generalizing term PCES is used as a provisional diagnosis during examination of a patient according to differential-diagnostic algorithm. Later, in most cases, it is possible to find out the cause of the patient's complaints and the more general term gives way to a specific diagnosis.

All pathological conditions observed in patients after gallbladder removal are divided into two main groups according to their causes:

- Functional disorders,
- Organic lesions.

- Organic ones include:
- lesions of the biliary tract;
- lesions of the gastrointestinal tract, among which are diseases of the liver, pancreas and 12 duodenum;
- Diseases and causes not related to the gastrointestinal tract.

But PCES itself, that is the condition that occurred after gallbladder removal surgery, is extremely rare. It is caused by adaptive restructuring of the biliary system in response to disconnection of the gallbladder, an elastic reservoir in which bile collects and concentrates. In other cases, there are diseases simulating PCES. Modern gastroenterological researches show, that in half of patients functional disorders of digestion are the cause of their complaints. Organic dysfunctions, which are found in one third of patients, are really the consequence of the performed operation only in 1.5% of cases and only 0.5% of patients with a confirmed diagnosis of EPS require repeated surgical intervention. If the diagnosis of PCES is established, there are inevitably issues related to legal and insurance liability for violations arising after the provision of medical care. Therefore, among the variety of pathological conditions passing under the label PCES, it has been proposed to distinguish two main groups depending on the nature of the causal relationship with previous cholecystectomy:

- Diseases not related to the previous surgery - as a rule, these are diagnostic errors;
- diseases being the direct consequence of surgical intervention, i.e. operational errors.

Diagnostic errors include:

- Concomitant diseases not detected before the operation or diseases similar to cholelithiasis in their clinical picture. These are situations when a diagnostic error has occurred, and although the operation removed the gallbladder filled with concretions, but the true source of pain was not eliminated.
- Diseases of other organs in the same region, which are not related in any way to the surgical intervention, but according to the complaints resemble gallstone recurrence and disturb the patient after the operation.

Surgical errors include

- Relapsed choledocholithiasis (stones left in the bile ducts).
- Papillostenosis (narrowing of the area where the bile ducts enter the intestine).
- Tumors of the bile ducts and the head of the pancreas.
- Damage of bile ducts during surgery.

Most of such mistakes are caused by incomplete preoperative examination and the following discrepancy of the operative intervention volume to the character and stage of main pathological process. This is manifested first of all in complicated forms of cholelithiasis treatment, when only standard cholecystectomy is performed instead of more extended variants of intervention. In this case there is an error according to the formula "incomplete diagnosis - insufficient scope of surgery".

Finally, the most dangerous is a group of direct iatrogenic surgical complications. Symptomatology of PCES in patients with various abdominal disorders appears at different periods after cholecystectomy, and sometimes represents a continuation of the same disorders that were before surgery and did not stop after it. The variety of symptoms and the different timing of their appearance are determined by the specific causes underlying these disorders.

Causes of "postcholecystectomy syndrome"

Here it is important to distinguish true recurrence of cholelithiasis, when concrements in the bile ducts form again after cholecystectomy, and false, when there are residual (remaining, preserved) concrements. The vast majority of bile duct stones are stones that were not removed during the first surgery. "Forgotten" stones account for 4 to 12% of all cholecystectomies performed. In recent years, after wide implementation of laparoscopic and endoscopic technologies in practical medicine, surgical tactics of treatment of patients with cholelithiasis began to change. Nowadays choledocholithiasis is not a contraindication for laparoscopic cholecystectomy, and for this category of patients a two-stage treatment is standard: endoscopic papillosphincterotomy and concrements removal from choledocha with subsequent laparoscopic cholecystectomy. The reverse sequence of stages is also possible, when a single nodule of small size is detected in the choledochus and left for removal by endoscopic method in the postoperative period.

This is often associated with the recurrence of postoperative pain, fever, or jaundice, although the gallbladder has already been removed. Cholecystectomy leads to a temporary (up to 6 months) increase in BDS sphincter tone in 85% of patients. This condition is usually associated with one-step disappearance of the reflex influence of the gallbladder on the sphincter. Further on, in the absence of pathological changes in the hepatoduodenopancreatic organs, sphincter tone normalizes and normal bile passage restores. Organic affection of BDS (stenosis) can be found in almost a quarter of patients operated on biliary tracts. More often it is the result of traumatic injuries of passing the stones or their location in the ampulla. At the beginning there is a swelling of the BVD, and with prolonged exposure and traumatization - scar changes, leading to its narrowing. Endoscopic papillosphincterotomy is the method of choice for treatment of IBD stenosis of cicatricial nature.

In 5% of patients who have undergone gallbladder extraction the cause of PCES is insufficiency of the BVD, leading to impaired obturator function and ostium gaping. It is based on dystrophic changes in the wall of the duodenum with atrophy of the mucous membrane and deformation of the valve apparatus. Free inflow of duodenal contents (reflux) into bile ducts through gaping duodenum leads to cholangitis and pancreatitis. The clinical picture consists of pain in the epigastrium and dyspeptic disorders as a feeling of heaviness and bloating after a meal. Fibroduodenoscopy reveals a gaping BMD. More valuable information can be received by gastric fluoroscopy and duodenography: barium suspension enters the bile ducts, and sometimes an overstretched BVD ampulla is seen.

If this pathology is detected, treatment begins with conservative elimination of inflammatory changes in the 12 duodenum. Detection of organic reasons, causing duodenostasis and duodenobiliary reflux, is an indication for surgical treatment.

Postoperative bile duct strictures complicate 1-2% of the surgical interventions performed on the biliary tracts. Thickening of the duct is either the result of inflammatory changes of its wall, or is a consequence of a stone in it. But sometimes it is caused by external reasons: as the result of their involvement in scar tissue at 12 duodenal ulcer, pericholedochal lymphadenitis or other inflammatory phenomena in this area. There is one more cause leading to duct narrowing - primary sclerosing cholangitis. The main manifestations of biliary duct cicatricial obstruction are jaundice, cholangitis, external biliary fistula, and complaints due to the development of secondary biliary cirrhosis and portal hypertension.

Treatment of strictures of ducts can be only surgical. The choice of surgical intervention depends mainly on the localization of scar stricture, its extent and degree of obstruction, intensity of inflammatory changes. Surgery must provide complete decompression of the biliary system, be physiological and, if possible, minor traumatic and exclude recurrence of the disease.

Cholangitis is one of the most serious complications of cholelithiasis. If bile is not excreted properly, it becomes stagnant, and pressure in biliary tract increases. This creates conditions for the upward spread of infection. In this case cholecystectomy will remove only one focus of infection, and the ducts will remain infected.

The next group of causes of PCES is an "excessive stump" of the gallbladder duct left by the surgeon and a "residual" gallbladder. There is no specific symptomatology for this variant of complications. Pain in the right hypochondrium, fever, and jaundice are also typical. As a rule, relapse of pain occurs only when the left part of the gallbladder or excessive stump contains stones or putty of thickened bile. Such surgical defects can be detected with abdominal ultrasonography (US). MR cholangiography can provide a more effective and detailed view of the problem. Thanks to this study, it is possible to clarify the length of the redundant stump of the vesicular duct, as well as to get an idea of the width of the ducts. Emerging symptoms and detection of excessive stumps or residual gallbladder are indications for repeated surgery and their removal, because they may contain concrements, smear-like masses, granulomas, neurinomas, which are the source of inflammation. However, even if an excessive stump of the vesicular duct is detected, the whole hepatopancreoduodenal area should be thoroughly examined, in order not to miss another possible cause of the existing complaints.

Bile duct tumors as a cause of PCES make up 2.3-4.7%. They may not be detected at the first operation or appear later. They are characterized by slow growth, not sudden increase of pain symptoms. MR cholangiography and MSCT of the abdominal cavity with bolus contrast is the most informative for correct diagnosis. **Diseases of the duodenum.** Almost always in patients with biliary tract, pancreatic and liver diseases (72.5-98.5% of cases) changes of duodenum in the form of edema and hyperemia of mucosa, its atrophy or disorders of intestinal motor function are found. After removal of the source of inflammation these disorders may decrease, but in most cases without adequate treatment chronic gastritis and duodenitis progress and create conditions for PCES diagnosis. Clinical manifestations consist of a feeling of heaviness and pain in the epigastric region, dyspeptic phenomena.

X-ray examination reveals disturbed peristalsis with slow passage of barium suspension through the intestine or, on the contrary, accelerated evacuation with spastic peristaltic waves and duodenogastric reflux. Fibrogastroduodenoscopy reveals signs of marked gastroduodenitis.

Chronic duodenal permeability disorder (CDPD) occurs in 0,45-5,7% of cases. Its clinical manifestations are masked by complaints similar to those of other organs. A pronounced pain syndrome, often of attack-like character, can be regarded as a manifestation of cholecystitis or pancreatitis. In the decompensated form of duodenostasis joins copious with an admixture of bile. At fibrogastroduodenoscopy the mucous membrane of the stomach and 12 duodenum is atrophic, there is duodenogastric reflux. The most informative for detection of this form of 12 duodenal disease is radiological examination .

Diverticula of the 12 duodenum occur in 2 to 3% of cases. They are usually located on the inner wall of the colon in the middle third of the descending part, where the muscular framework of the wall is weakened as a result of vessels and ducts passing in this area. Clinical symptoms are in the form of pain, rarely vomiting. Sometimes jaundice with cholangitis appears. Diagnostics is guided by roentgenologic study (duodenography). FGDS clarifies the size of the diverticulum, the condition of the mucous membrane and the location of the LAD. Treatment of this disease is surgical.

Chronic pancreatitis. Chronic pancreatitis is rather frequent in patients who have undergone cholecystectomy. It is in patients with cholecystectomy that there are many factors that lead not only to the biliary tract affection, but also to the affection of neighboring organs. In the majority of patients the external secretory function of the pancreas decreases and enzymatic insufficiency occurs.

In all cases technically correctly performed cholecystectomy contributes to improvement of pancreatic juice outflow and partial recovery of external secretory function of the gland. First of all trypsin secretion is restored (by the 6th month), while normalization of amylase activity can be expected only after 2 years. However, at a far advanced stage of fibrotic changes, chronic pancreatitis begins to manifest after surgery as an independent disease with exacerbations and remissions.

Usually pains are characterized as shingles, accompanied by digestive disorders, because external secretory function of the pancreas is disturbed, its enzymatic activity is reduced. Later, due to fibrosis of gland tissue, intrasecretory function disorders of insular apparatus may join. Therefore, when examining such patients, in addition to conventional biochemical parameters with determination of amylase and lipase, it is necessary to study enzymatic activity of pancreatic juice, sugar curve and glucose tolerance test, as well as radiological examination of the gastrointestinal tract and bile ducts.

Other causes. Intestinal absorption disorders, dysbacteriosis and colitis can simulate the recurrence of pain after surgery. One must also remember hemolytic disease proceeding with anemia, jaundice and splenomegaly, diseases of right colon, right kidney and lumbosacral spine, causing pain syndrome in 15-63% of patients, not connected with pathological changes of biliary system.

Thus, a thorough examination of patients with PCES is necessary, which includes besides general clinical and biochemical tests, ultrasound investigation of the hepatopancreatoduodenal organs, fibrogastroduodenoscopy and X-ray contrast study of the gastrointestinal tract organs, X-ray investigation of the biliary tract (CT, RCT or CRCG) to reveal the real cause of pain relapse and choose an adequate treatment tactics.

Principles of examination of a patient with postcholecystectomy syndrome. First of all, the continuity and rational interaction of ambulatory-policlinic, general surgical and specialized levels of medical care are necessary. All patients after cholecystectomy are subject to follow-up observation by gastroenterologist for both early detection of adverse results and preventive measures: therapeutic nutrition, physical training, plant-based diet restricting proteins and fats of animal origin, usage of choleretic agents, reducing bile lithogenicity.

Another provision is an obligatory consultation with the operating surgeon after the rehabilitation. In this case, the operating surgeon receives important information about the immediate and long-term results of surgical treatment. It is valuable for the patient because it is in the hands of the surgeon who has valuable information about the pre-morbid status, peculiarities and details of the surgery itself, the data from the auxiliary pre- and intraoperative research methods. Another important condition in the examination of patients with PCES is the principle of pathology search from the most frequent causes, to the rarer ones, and performing investigations from simple to complex, from noninvasive, but often less informative methods to more traumatic, but giving more important information about the disease. At the same time, against the background of the planned program of examination, which includes numerous methods and takes, for obvious reasons, a long period of time, it is necessary to distinguish situations that require urgent referral of the patient to the hospital. Surgical alertness should be the higher, the less time has passed since the operation. This primarily refers to pain syndrome, accompanied by jaundice, fever, chills, nausea and vomiting, i.e. when we can suspect acute cholangitis in a patient.

Examination of a patient with presumed diagnosis of postcholecystectomy syndrome should definitely be started with abdominal ultrasound. The result will exclude marked anatomical changes of the hepatopancreatobiliary system organs and make further investigations more focused.

As for CT scan, its use for detection of choledocholithiasis in absence of pathological changes in liver and pancreas is irrational and less informative. At the same time it is difficult to overestimate possibilities of CT scanning in case of organic changes of hepatopancreoduodenal organs. MRI,

especially performed in MR-cholangiography mode, can give rather important information concerning biliary tract condition, as well as pancreatic ductal system. And yet, despite the great possibilities of modern diagnostic methods, there is a group of patients in whom the cause of complaints after cholecystectomy cannot be identified.

Treatment

Treatment of patients with LCPD should be comprehensive and aimed at eliminating those functional or structural disorders of the liver, biliary tract, gastrointestinal tract and pancreas, which are the basis of suffering and were the reason for visiting the doctor. Lifestyle and diet play an essential role in the development of GSD. Therefore, diet, eating habits, and physical exercises are the most important conditions for rehabilitation after cholecystectomy.

A diet is prescribed that:

1. should not provoke liver colic and have a harmful effect on the pancreas;
2. It must have a positive influence on bile secretion and on external secretory function of the pancreas;
3. it contributes to reduction of lithogenic properties of bile;
4. It improves metabolic processes of the liver.

Drug therapy also usually includes a combination of drugs of different classes. Treatment is based on normalization of bile passage in common hepatic duct, common bile duct and pancreatic juice in main pancreatic duct. To eliminate relative enzymatic insufficiency, existing in the majority of patients, and to improve fat digestion, adequate enzyme accompaniment of the treatment course is grounded.

Discovery of erosive-ulcerative lesions of mucous coat of upper sections of gastrointestinal tract involves antisecretory therapy, and at diagnosis of helicobacteriosis - eradication therapy.

Conclusions: Cure of flatulence can be achieved by prescription of antifoaming agents, combined drugs, sorbents, preparations of microcrystalline cellulose. Often, GSD is accompanied by intestinal biocenosis disorder, leading to intestinal dyspepsia. In these cases, decontamination therapy is appropriate. Then treatment with probiotics and prebiotics is carried out. Of course, such a comprehensive examination and treatment is best performed in one institution. Our clinic has all the necessary diagnostic capabilities for full examination, treatment and rehabilitation and preventive measures.

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