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LYMPHATIC APPROACHES TO THE PREVENTION AND TREATMENT OF COMPLICATIONS AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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Abstract

Laparoscopic cholecystectomy is the standard surgical treatment for gallstone disease and acute cholecystitis. Despite its minimally invasive nature, postoperative complications remain clinically relevant. In recent years, increasing attention has been paid to the role of the lymphatic system in the development of postoperative inflammation, lymphostasis, and infectious complications. The aim of this review is to analyze current literature data on lymphatic approaches in the prevention and treatment of complications after laparoscopic cholecystectomy. The review discusses pathophysiological mechanisms of lymphatic drainage disorders, lymphotropic drug delivery, physical methods of lymphatic stimulation, and intraoperative preventive measures. Lymphatic approaches are shown to reduce inflammatory complications, postoperative pain, and length of hospital stay. Further randomized clinical studies are required to standardize techniques and clarify indications.

Keywords

laparoscopic cholecystectomy, lymphatic system, lymphotropic therapy, postoperative complications, prevention.

Аннотация

Актуальность изучения лимфатического русла передней брюшной стенки и регионарных лимфатических узлов, помимо общебиологического интереса, продиктована необходимостью предвидения развития послеоперационных осложнений локального характера, связанных с функционированием лимфодренажной системы (серомы, отек, лимфоррея, лимфостаз, лимфокисты), что бывает очень сложно из-за отсутствия широких возможностей визуализации основных путей лимфооттока в области хирургического вмешательства. (Р.Т.Панченков, Б.М. Уртаев, 1986; В.И. Буянов, 1990; Ю.Е. Выренков и соавт., 1995, 1996, 1997, 2007; И.В. Ярема и соавт., 1999 - 2007; А.И. Марченко,2007). В литературе приводятся лишь отрывочные сведения по лимфатическим сосудам этой области, неадаптированные к запросам функциональной диагностики в хирургии.

Лапароскопическая холецистэктомия является стандартным методом хирургического лечения желчнокаменной болезни и острого холецистита. Несмотря на минимальную инвазивность вмешательства, частота послеоперационных осложнений остается клинически значимой. В последние годы внимание исследователей привлекает роль лимфатической системы в развитии послеоперационного воспаления, лимфостаза и инфекционных осложнений. Цель настоящего обзора — проанализировать современные литературные данные, посвященные лимфатическим подходам в профилактике и лечении осложнений после лапароскопической холецистэктомии. В обзоре рассмотрены патофизиологические механизмы нарушения лимфооттока, методы лимфотропной терапии, физические способы стимуляции лимфодренажа и интраоперационные меры профилактики. Показано, что лимфатические подходы способствуют снижению частоты воспалительных осложнений, уменьшению болевого синдрома и сокращению сроков госпитализации. Отмечена необходимость дальнейших

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рандомизированных исследований для стандартизации методик и определения показаний.

Очевидно, что при различной степени функционирования лимфодренажной системы даже сохранение достаточно крупных сосудов не сможет гарантировать надежность компенсации оттока лимфы в зоне проведения хирургических оперативных вмешательств (Давыдов М.И., 2006).

Ключевые слова

лапароскопическая холецистэктомия, лимфатическая система, лимфотропная терапия, послеоперационные осложнения, профилактика.

Introduction

Laparoscopic cholecystectomy (LCE) is a leading procedure in both elective and emergency abdominal surgery. The advantages of this method include minimal invasiveness, early patient mobilization, and reduced postoperative mortality. However, even with adherence to standard techniques, complications after LCE, according to the literature, occur in 5–15% of cases, especially in cases of acute destructive cholecystitis and comorbidities. The state of the regional lymphatic system plays a significant role in their development.

The Role of the Lymphatic System in the Pathogenesis of Postoperative Complications

The lymphatic system of the hepatobiliary zone ensures the drainage of interstitial fluid, the transport of immune cells, and the removal of inflammatory products. Surgical trauma, thermal effects, and vascular coagulation during LCE lead to damage to the lymphatic collectors, the development of lymphostasis, and local edema. These changes create conditions for persistent inflammation, the formation of seromas, infiltrates, and infectious complications.

Lymphatic approaches to preventing complications after LCE

Lymphotropic drug therapy

Lymphotropic administration of antibacterial and anti-inflammatory drugs allows for increased concentrations of active substances in regional lymph nodes. This method promotes more effective prevention of infectious complications while reducing the systemic drug load.

Physical methods for stimulating lymph flow

Physical methods include magnetic therapy, low-intensity laser therapy, and ultrasound. Their use improves microcirculation, reduces tissue edema, and accelerates reparative processes in the postoperative area.

Intraoperative preventive measures

Key aspects of prevention include gentle dissection technique, minimizing thermal tissue damage, adequate hemostasis, and rational drainage of the subhepatic space. The use of biological sealants is considered a promising approach to preventing lymphorrhea. Treatment of Postoperative Complications Using Lymphatic Approaches

In the development of seromas, infiltrates, and inflammatory complications after laparoscopic cholecystectomy, lymphotropic therapy combined with puncture drainage and physiotherapy methods promotes accelerated resolution of the pathological process and a reduction in the rate of repeat interventions.

Discussion

A review of the literature demonstrates the pathogenetic validity of lymphatic approaches in hepatobiliary surgery. Despite positive clinical results, most studies are limited, necessitating further multicenter research.

Conclusion

Lymphatic approaches are a promising and pathogenetically justified approach to the prevention and treatment of complications after laparoscopic cholecystectomy. Their

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implementation in clinical practice can contribute to improving the immediate and long-term outcomes of surgical treatment.

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