General Surgery V

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ISBN
978-625-362-004-2

Book Title
General Surgery V

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Publishing Coordinator
Yasin DİLMEN

Page and Cover Design
Typesetting and Cover Design by Akademisyen

Publisher Certificate Number
47518

Printing and Binding
Vadi Printingpress

Bisac Code
MED085000

DOI
10.37609/akya.4135

Library ID Card
General Surgery V / ed. Ömer Alabaz, Alper Sözütek.
Ankara : Akademisyen Yayınevi Kitabevi, 2026.
153 p. : table. ; 160x235 mm.
Includes References.
ISBN 9786253620042

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PREFACE

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Chapter 1

NEW STRATEGIES FOR THE TREATMENT OF BILE DUCT INJURIES

Fatih ŞAHİN[1]

INTRODUCTION

Laparoscopic cholecystectomy has maintained its status as the gold standard surgical approach for the management of gallbladder pathologies since its widespread adoption in the early 1990s. As a minimally invasive technique associated with shorter hospital stays, reduced postoperative pain, and faster recovery, it has become the most frequently performed elective abdominal procedure in the United States, with annual case volumes exceeding 750,000 interventions (1). Despite its well-established benefits, bile duct injury (BDI) remains one of the most serious and feared complications associated with cholecystectomy, given its potential to result in significant morbidity, long-term biliary dysfunction, and decreased quality of life.

The critical nature of BDI in surgical practice is underscored by large-scale epidemiological data. Notably, two major administrative databases encompassing over 850,000 laparoscopic cholecystectomy procedures conducted between 2005 and 2014 in the states of New York and California reported an overall incidence of BDI ranging between 0.1% and 0.2% (3,4). Although this incidence may appear low, the sheer volume of procedures performed annually implies that a substantial number of patients are affected by this complication each year, with important clinical, emotional, and economic consequences.

In this context, the prevention of bile duct injuries represents the most desirable and cost-effective strategy. Preventive efforts rely on adherence to meticulous surgical technique, routine use of intraoperative imaging when indicated, and strict application of anatomical dissection principles such as the critical view of safety. Nevertheless, despite the best preventive strategies, BDIs may still occur due to anatomical variations, inflammation, or technical errors.

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DOI: 10.37609/akya.4135.c6717

invasive endoscopic interventions, regenerative medicine applications, and next-generation imaging technologies. This evolution is driven by a convergence of evidence underscoring the diagnostic and therapeutic utility of ERCP and MRCP, alongside groundbreaking progress in tissue engineering and 3D bioprinting, which collectively offer novel, potentially paradigm-shifting solutions for bile duct repair and functional restoration.

The integration of these innovative strategies into clinical practice heralds a promising future for the management of biliary tract injuries—enhancing diagnostic precision, reducing procedural morbidity, and offering biologically based, patient-specific treatment modalities. The utilization of bioengineered scaffolds, stem cell therapies, and bioprinted constructs stands to transform reconstructive options, while ongoing refinements in MRCP technology continue to improve non-invasive diagnostic capabilities, reducing dependency on invasive diagnostics and associated risks.

Nonetheless, a number of significant barriers remain. These include the optimization and standardization of regenerative therapies, mitigation of ERCP-related complications such as post-ERCP pancreatitis, and improving accessibility and cost-effectiveness of advanced imaging modalities in diverse healthcare settings. Future research priorities must include the development of evidence-based clinical algorithms, enhancement of biomaterial-host integration, and the rigorous evaluation of long-term clinical outcomes through prospective, controlled trials.

In conclusion, the field of biliary tract injury management is experiencing a transformative shift, driven by the synergistic interplay of endoscopic innovation, regenerative medicine, and advanced imaging. The convergence of these domains holds the potential to revolutionize current standards of care—providing safer, more effective, and individualized treatment pathways for patients affected by these complex and often debilitating injuries. With continued interdisciplinary collaboration and translational research, this evolving landscape promises to redefine the future of hepatobiliary surgery.

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Chapter 2

WHICH TREATMENT METHOD IS MORE EFFECTIVE FOR SUPERFICIAL SQUAMOUS CELL NEOPLASIA ADJACENT TO ESOPHAGEAL VARICES?

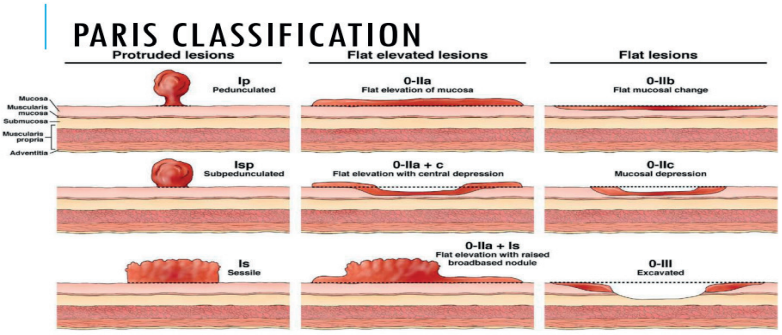
Selim SÖZEN[1]

INTRODUCTION

Endoscopic submucosal dissection(ESD) is a minimally invasive technique. ESD has gradually become accepted as an alternative treatment of superficial esophageal squamous-cell neoplasia (SESCN) beside esophagectomy(1). There are American Joint Committee on Cancer (AJCC) system and the Union for International Cancer Control (UICC) for SESCN staging guidelines(2). Another classification system is the Paris classification for superficial tumors, used in standard endoscopic terminology.(Figüre 1)

DISCUSSION

Neoplastic lesions, which are the abnormal growth of tissues, in the gastrointestinal tract are called "superficial" (including dysplasia, which is the abnormal growth of cells in an organ, and adenoma, which is non-cancerous tumours).



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DOI: 10.37609/akya.4135.c6718

EVL and EIS are commonly applied methods for endoscopic treatment of EV, but only varicose veins with diameters >0.3 cm can be targeted by these two methods(31). APC can effectively seal blood vessels with diameters ≤0.3 cm, thus alleviating the recurrence of varicose veins(32). Sequential APC treatment after EIS is safe and can prevent the recurrence of esophageal varices(33,34). Sequential treatment of esophageal solitary venous dilatation, endoscopic drainage sclerotherapy, and ESD are most effective treatments for esophageal varices with early esophageal cancer(35)

CONCLUSION

In conclusion, Esophageal cancer with esophageal varices could be treated endoscopically safely and effectively(36). APC and ESD are useful treatments in the early superficial cancers with esophageal varices.

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Chapter 3

ENDOSCOPIC BARIATRIC PROCEDURES

Onur İlkay DİNÇER[1]

INTRODUCTION

Obesity is a chronic disease that can be considered a global pandemic with an increasing prevalence. It has been reported that the prevalence of obesity has doubled in 70 countries, and obesity has increased in almost all countries since 1980 (1). Although many different treatment methods such as diet, medication and psychotherapy have been tried in obesity, it has been shown that long-term weight loss cannot be maintained, especially in the morbidly obese patient group, and the psychological and metabolic negative effects of unsuccessful weight loss experiences increase exponentially (2). Studies continue to prove that surgery is the most effective treatment for morbid obesity. Of course, as with any surgical procedure, bariatric procedures are associated with certain complications. Complications of bariatric surgery include a wide range of complications, including venous thromboembolism, anastomotic leaks, infection, bleeding, intestinal obstruction, vitamin deficiencies, and hernias. Although bariatric surgical procedures carry an acceptable risk of mortality and morbidity, some patients are unwilling to take these risks and seek additional treatment options (3). Endoluminal endoscopic procedures are now being used as primary procedures in obese patients with a low body mass index (BMI) (BMI 30-35 kg/m2), as well as in morbidly obese patients who meet traditional bariatric surgery criteria. They are also being used as bridge therapy in superobese patients (3). As in bariatric surgery, the main mechanisms in endoscopic bariatric procedures are of two types: restrictive, which focuses on volume, such as the gastric balloon, and malabsorbative, such as stent and aspiration technologies. Endoscopic primary bariatric procedures will be examined under two headings: gastric interventions and small bowel interventions.

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DOI: 10.37609/akya.4135.c6719

In a pilot study of 12 patients, the average excess weight loss over 12 weeks was 23.6%. Two patients reported premature device removal due to epigastric pain, nausea, and vomiting. Inflammation was found at the duodenal fixation site in all patients (70). A recent meta-analysis found a 12.6% greater excess weight loss compared with dietary modification, but it failed to significantly impact fasting blood glucose.

CONCLUSION

Obesity will be one of the biggest problems to be overcome worldwide in the coming years due to changing eating habits and lifestyles. Protecting patients from the risks of surgical complications by developing more minimally invasive methods alongside surgical treatment options is a priority. With advancing technology and developing industry, the quality of endoscopic devices and the types and complexity of procedures that can be performed are constantly increasing. Numerous products are currently under development and in the experimental phase in the literature. It is expected that more prominent interventions, due to their minimal intervention and minimal complication risk, will emerge in the coming years.

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Chapter 4

CHANGE OF PUNCTURE SİTE İN RİGHT INTERNAL JUGULAR CENTRAL VENOUS CATHETERİZATİON – TECHNİCAL NOTE

Ahmet GÜLTEKİN[1]

INTRODUCTION

The rationale for optimizing puncture site and catheter depth will be addressed in this technical note. Forssmann performed the first cardiac catheterization on himself; however, his findings were rejected and ridiculed by his colleagues, preventing him from continuing his research. His pioneering work was later carried forward in the United States by André Frédéric Cournand and Dickinson Woodruff Richards Jr. In 1956, the three physicians jointly received the Nobel Prize in Medicine for their studies on the vascular and cardiac systems. The ingenuity and perseverance of these clinicians paved the way for one of the most commonly performed hospital procedures today: the insertion of peripheral and central venous catheters (1). A central venous catheter (CVC) is typically defined as one whose tip is positioned in the proximal segment of the superior vena cava, within the right atrium, or in the inferior vena cava. These catheters may be inserted through peripheral or centrally located veins, with the internal jugular, subclavian, and femoral veins being the most common access sites (2).

BACKGROUND

Historically, central venous catheterization has been performed using landmark-based methods, which depend on anatomical familiarity and the palpation of nearby arterial structures. Yet, such approaches do not account for anatomical variability at the intended puncture site. Numerous studies have shown that considerable deviations from 'typical anatomy' may occur in many patients, particularly involving the internal jugular, subclavian, and femoral veins (3).

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DOI: 10.37609/akya.4135.c6720

puncture point at the right internal jugular vein to the right margin of the sternal angle, measured via the right sternoclavicular joint (19).

CONCLUSION

When directly observed optimal catheter depths were compared to the formula-based values, it was found that formulas incorporating the distance from the puncture site to the right sternal angle are preferred. This is because the distal movement of the ultrasound probe facilitates easier and more precise CVC placement, making height-based formulas less accurate in these circumstances.

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Chapter 5

DECISION-MAKING PROCESSES IN GENERAL SURGERY FOR ELDERLY PATIENTS

Yunushan Furkan AYDOĞDU[1]

INTRODUCTION

Increased life expectancy and advances in healthcare have led to older individuals encountering diseases requiring surgical treatment more frequently. Today, a significant proportion of patients evaluated in general surgery practice are aged 65 and over, and this proportion is increasing (1-6). Despite advances in Surgical techniques, anesthesia practices, and perioperative care, postoperative complication rates in elderly patients are still higher than in younger patients, making surgical decision-making processes significantly more complex (2,3,7-11).

One of the most important challenges in managing elderly surgical patients is the heterogeneity of this patient group. Two individuals of the same chronological age may have significant differences in functional capacity, burden of comorbidities, level of independence, and physiological reserve. Therefore, assessing surgical risk based solely on age is insufficient and can often be misleading (2,12-16). The increasingly accepted approach today is that the primary factor determining surgical outcomes is the patient's physiological reserve capacity rather than chronological age (1,13,12,17,18).

The decline in physiological reserve in the elderly is characterized by functional deterioration in multiple organ systems and reduced tolerance to stress factors. This situation causes elderly patients to become more vulnerable in the face of major physiological stress, such as surgical intervention. Reserve loss, particularly in the cardiovascular, pulmonary, and renal systems, is among the key factors that increase the risk of complications developing in the postoperative period (1,4,9,19,20). In this context, the concept of "physiological frailt" has come to the

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DOI: 10.37609/akya.4135.c6721

Chapter 6

SURGICAL TREATMENT OF PULMONARY ASPERGILLOMA

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Aspergillus is a fungal species widely distributed in nature. The most encountered pathogenic species in humans is *Aspergillus fumigatus*. Aspergillus spores acquired via inhalation may cause various diseases. The most frequently encountered of these is aspergilloma, which represents a saprophytic infection.

Aspergillomas are mass-forming lesions created by the settlement of heavily inhaled Aspergillus spores into pre-existing cavities within the host, where fungal hyphae combine with blood elements and necrotic tissue. Frequently observed in tuberculous cavities, aspergillomas may develop in any cystic or cavitary substrate, including bronchiectasis, bronchogenic cysts, or cavitating bronchogenic carcinoma.

The most common symptom in patients is hemoptysis. Minor hemoptysis episodes that resolve spontaneously may be observed, as well as life-threatening fatal hemorrhages. Cough, chest pain, dyspnea, and fever are other symptoms that may be seen in patients with aspergilloma.

On conventional chest radiographs and computed tomography scans, a mass formation demonstrating the air-crescent sign is characteristic of aspergilloma. It is generally seen in the upper lobes and is usually unilateral. The significance of isolating Aspergillus species in sputum cultures for diagnosis is uncertain. Detection of precipitating antibodies against Aspergillus in serum constitutes both a specific and sensitive finding. Definitive diagnosis is established by histological demonstration of Aspergillus in biopsy material and by culture of the organism.

Systemic or topical antifungals are ineffective in the treatment of aspergilloma except in limited cases. Bronchial artery embolization, applied to control hemoptysis episodes, is also generally unsuccessful due to the difficulty in identifying the bleeding vascular structures and the development of extensive

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DOI: 10.37609/akya.4135.c6722

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Chapter 7

BILE DUCT INJURIES: PREVENTION, DIAGNOSIS AND CURRENT MANAGEMENT

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1) DEFINITION AND CLINICAL SIGNIFICANCE

Bile duct injury (BDI) refers to the broad clinical spectrum of iatrogenic damage associated with cholecystectomy, ranging from early bile leak, biloma, and sepsis to late ductal stricture, recurrent cholangitis and secondary liver injury. (1,2) Reducing this spectrum to a single complication heading is often insufficient; because under the same clinical title, there are conditions ranging from a minimal leak to complete transection and complex injuries close to the hilum, for which the treatment strategy changes completely. (1,3) In clinical practice, bile leak becomes more visible in the early period through bile drainage output, biloma, and signs of infection, whereas major ductal injuries, in the presence of delayed diagnosis or inadequate initial management, tend to follow a course with more severe morbidity, longer hospitalization and a higher need for repeat intervention. (4) This difference arises not only from the anatomical severity of the injury, but also from the capacity of the approach applied in the early period either to enlarge the problem or bring it under control. (3,5) Evaluating BDI only as a problem resolved in the early postoperative days may be misleading, because the main burden often accumulates through strictures that emerge during long-term follow-up, recurrent cholangitis attacks and the associated loss of quality of life. (2,6) From the perspective of long-term outcomes, even if postoperative recovery appears complete for the patient, the tendency of the biliary system to develop fibrosis and stenosis over time prolongs the clinical story. Indeed, the association of bile leak and ductal injury with adverse long-term outcomes in some series suggests that these complications are a rare but high-impact clinical problem. (2,4) At this point, the main goal is to establish the correct balance between the

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DOI: 10.37609/akya.4135.c6723

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Bölüm 8

GRANULOMATOUS MASTITIS

Ferdi BOLAT[1]

1. DEFINITION AND HISTORICAL PERSPECTIVE

Granulomatous mastitis (GM) is a heterogeneous group of diseases characterized by granulomatous inflammation of the mammary gland. Idiopathic granulomatous mastitis (IGM), the most common form of this group, is a diagnosis of exclusion made after all known etiological causes have been ruled out; systemic or infectious conditions such as sarcoidosis, tuberculosis, Wegener's granulomatosis, and foreign body reactions may also cause granulomatous breast inflammation (1,2). From a clinical standpoint, IGM is arguably one of the most deceptive benign breast conditions encountered in surgical practice, as its ability to closely mimic malignancy — both at the bedside and on imaging — frequently leads to unnecessary patient anxiety and diagnostic uncertainty.

The disease was first described by Kessler and Wolloch in 1972; although significant advances have been made over the past half century regarding its etiology, diagnosis, and treatment, clinical management remains controversial. High long-term recurrence rates, the absence of a single pathogenetic mechanism, and the scarcity of randomized controlled trials continue to make IGM an active area of research (2). Awareness of this entity is therefore as important as familiarity with its management, and clinicians who encounter inflammatory breast masses regularly should maintain a consistently high index of suspicion.

2. CLASSIFICATION

Granulomatous mastitis is classified into two main categories based on its etiological basis: infectious GM and non-infectious GM. This distinction is of critical importance to the clinician, as it directly determines the treatment approach. In practice, the classification of GM begins with a thorough clinical

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DOI: 10.37609/akya.4135.c6724

in particular should be re-evaluated. Follow-up visits also serve a function beyond disease surveillance: they provide a structured opportunity to assess the psychological impact of a chronic, relapsing condition on a predominantly young female patient population, and clinicians should be attentive to signs of anxiety or depression during these encounters and refer appropriately when needed.

11. LIMITATIONS OF CURRENT EVIDENCE AND FUTURE DIRECTIONS

The idiopathic granulomatous mastitis literature consists largely of retrospective series, case reports, and methodologically heterogeneous systematic reviews. The absence of randomized controlled trials prevents answers to fundamental clinical questions such as the optimal corticosteroid dose and duration, the appropriate timing of immunomodulatory agents, and the precise definition of surgical indications.

In the coming period, research priorities should be shaped around the following themes: prospective microbiome studies aimed at clarifying the true pathogenetic role of Corynebacterium; randomized trials comparing corticosteroid dosing protocols; identification of biomarkers that can be used to predict recurrence; and determination of safe treatment options during pregnancy and lactation. It is also worth calling attention to the need for patient-reported outcome measures in future IGM research; most existing studies define success in terms of radiological resolution or recurrence rates, yet what matters most to patients — quality of life, cosmetic outcome, return to normal daily activities, and psychological wellbeing — is rarely systematically captured, and incorporating these endpoints into future trial designs would bring the evidence base closer to the lived reality of the disease.

The establishment of international databases and multicenter cohorts will be critical in overcoming the sample size limitations created by the rarity of the disease.

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Chapter 9

DIFFERENCES BETWEEN RIGHT-SIDED AND LEFT-SIDED COLON CANCERS

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1- EMBRYOLOGICAL DEVELOPMENT AND ANATOMICAL DIFFERENCES

The colon develops from two parts of the gastrointestinal system: the midgut and the hindgut. The cecum, ascending colon, and the proximal two-thirds of the transverse colon are named as the right colon and originate from the midgut. The distal one-third of the transverse colon, descending colon, sigmoid colon, and proximal rectum are called the left colon and originate from the hindgut. These differences influence their blood flow, nerves, tissues, and function, essentially making the right and left colon behave differently.

Between weeks 6–10, the midgut temporarily herniates and rotates 270° counterclockwise. As a result of this rotation, the cecum moves from the upper quadrant to the right lower quadrant. The hindgut remains relatively fixed and joins the pelvic structures to form the distal rectum [1,2].

The splenic flexure is the embryological boundary. It is the point between the end of the transverse colon and the start of the descending colon. This area is a transition zone, influenced by both the midgut and hindgut. It is also known as a "watershed" area because it receives blood supply from both the superior mesenteric artery (SMA) and the inferior mesenteric artery (IMA). Perfusion in this region is relatively weaker; therefore, ischemic colitis is more likely to occur

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DOI: 10.37609/akya.4135.c6725

Regarding treatment response, primary tumor localization is currently accepted as a predictive biomarker. While RAS/BRAF wild-type left colon tumors significantly benefit from anti-EGFR-based therapies, the efficacy of anti-EGFR treatments is limited in right colon tumors despite having the exact same biological profile [78,79]. For this reason, current ESMO and NCCN guidelines define tumor localization as a clear decision point in the selection of treatment for metastatic disease [52,60].

On the other hand, the introduction of immunotherapy into clinical practice has radically changed the treatment paradigm, especially for MSI-H/dMMR right colon cancers. In this patient group, which was previously considered to have a poor prognosis, long-lasting responses and a significant survival advantage have been achieved with PD-1 inhibitors [34,68]. Thus, the poor prognostic biology in right colon cancers has turned into a therapeutic advantage with proper patient selection.

Evaluated from a surgical standpoint, localization continues to impact the extent of resection, the scope of lymph node dissection, and perioperative risks [70]. However, modern oncological surgical principles (e.g., complete mesocolic excision) have the potential to improve survival independently of localization [53].

In conclusion, the question of "right or left?" in colon cancer management is no longer just an anatomical description; it is a fundamental clinical parameter that predicts the disease's biology, treatment response, and long-term prognosis. The current approach necessitates a personalized, multidisciplinary, and guideline-based management strategy that considers tumor localization, molecular features, and patient factors collectively [52,60]. This perspective will pave the way for the development of more refined risk classifications and targeted treatment algorithms for colon cancer in the future.

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Chapter 10

CHYLOTHORAX

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INTRODUCTION

Chylothorax is the pathological accumulation of a fluid called "chyle" (lymphatic fluid) in the pleural cavity as a result of obstruction, injury of the thoracic duct, or decreased lymphatic drainage. Chyle is a milky-appearing body fluid formed in the intestinal lacteal system and contains high amounts of triglycerides, chylomicrons, T-lymphocytes, immunoglobulins, enzymes, and fat-soluble vitamins (A, D, E, K).

Chylothorax was first described by Bartloet in 1633 (1). In the following years, Pecquet described the "cisterna chyli" (Pecquet's cistern) in 1651 (2). In the field of surgical management, Lampson demonstrated in 1948 that chylothorax can be successfully treated by direct ligation of the thoracic duct (3).

Although chylothorax is rare, it is a potentially life-threatening condition when not managed in a timely and effective manner. It may lead to serious clinical outcomes such as nutritional and metabolic disorders, immunological deficiency, and respiratory failure. In untreated cases, the mortality rate can reach up to 50%; however, with modern and aggressive treatment approaches, this rate has decreased to 10-16% in postoperative cases (4).

The management of chylothorax should be carried out by a multidisciplinary team depending on the etiology and the amount of drainage. Pleural drainage, dietary modification, and pharmacological treatment usually constitute the first-line therapy, while interventional radiological methods and surgical treatment are considered advanced treatment options.

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DOI: 10.37609/akya.4135.c6726

For diagnosis, a pleural fluid triglyceride level above 110 mg/dL or the demonstration of chylomicrons by lipoprotein electrophoresis is considered the gold standard. Today, the most common cause of chylothorax is iatrogenic injury related to thoracic surgery, while malignancies, especially lymphoma, are the leading cause in non-traumatic cases. The most important factor guiding treatment is the drainage volume, and conservative management has a lower success rate in high-output leaks exceeding 1000 mL per day.

Loss of chyle may result in immunosuppression due to lymphocyte and immunoglobulin depletion, malnutrition due to protein and vitamin loss, and electrolyte imbalances. Therefore, the management of chylothorax requires a multidisciplinary approach. Advances in imaging, minimally invasive interventions, and surgical techniques have improved treatment outcomes.

In conclusion, chylothorax is a complex clinical condition that requires early diagnosis and appropriate management, as delayed treatment is associated with high mortality.

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