

Frequently Asked Questions of General Surgery

Edited by Han Shaoliang & Li Wenfeng



Fudan University Press

 复旦大学出版社

Frequently Asked Questions of General Surgery

Edited by Han Shaoliang & Li Wenfeng

Fudan University Press

復旦大學出版社

Contributors

Han Shaoliang

Li Wenfeng

Zhou Hongzhong

Cheng Jun

Wang Pengfei

Jia Zengrong

Zheng Xiaofeng

Du Zhou

Chen Zhouxun

Preface

Surgery is an important section of medicine. Generally, the treatment of surgery is taken operation and surgical manipulation as main measures, whereas, internal medicine usually apply drug as main measure. However, not all surgical diseases are needed surgical treatment, purulent infection; for example, it is treated with antibiotic at its early stage and treated surgically only when the abscess formed.

Frequently asked questions (FAQS) of General Surgery is the collection of author's lectures for international students who studied western medicine in China. The goal of this book is to provide concise information that every fifth-year surgical student should know in an "easy way", and also it provide short conversation for the teachers.

The format of *FAQS of General Surgery* is conducive to the recall of basic surgical facts because it relies on repetition and positive feedback. As one repeats the question-and-answer format, one gain success.

The book includes completely updated information, top 100 clinical surgical microvignettes. We have combated the textbooks and have come up with the facts you need to know.

An internship that makes medical student future bright.

Professor Han Shaoliang

March 29, 2014

Contents

Perioperative Treatment

Chapter 1	Surgery Overview, Anesthesia and Asepsis Technique	001
	Surgery Overview / 001	
	Knowledge about Anesthesia / 002	
	Aseptic Technique / 006	
Chapter 2	Basic Surgical Procedure	008
	Basic Techniques / 008	
	Operative Techniques / 013	
	Surgical Anatomy “Pearls” / 021	
	Operative Knowledge and Techniques / 024	
Chapter 3	Electrolyte Disturbance and Acid-Base Imbalance	028
	Fluid Metabolism Imbalance / 028	
	Acid-Base Imbalance / 041	
	Blood Gas Analysis / 048	
Chapter 4	Blood Transfusion	053
	The Indications of Blood Transfusion and Estimates / 053	
	The Complications of Blood Transfusion / 056	
	Basic Knowledge of Blood Transfusion / 058	
Chapter 5	Preoperative and Postoperative Management	064
	Preoperative Preparation and Treatment / 064	
	Fluid Compartments and Clinical Significance / 066	
	Postoperative Electrolyte Disturbance / 068	
	How to Count for Nutrition Treatment / 069	
	Postoperative Treatment for Anesthesia and Surgery / 075	
	Preoperative Examinations / 077	



Chapter 6	Surgical Infection	085
	Outline / 085	
	Mechanism of Action and Side Effects of Antibiotics / 088	
	Appropriate Use of Antibiotics / 089	
	Gas Gangrene / 091	
	Urinary Tract Infection / 092	
	Catheter-Associated Infection / 093	
	Wound Infection / 094	
	Pseudomembranous Colitis / 095	
	Tetanus and Necrotizing Fasciitis / 095	
	Abscess / 097	
	Suppurative Hidradenitis / 098	
	Furuncle and Carbuncle / 098	
	Prevention of Infection / 098	
Chapter 7	Shock and Multiple Organ Dysfunction Syndrome	101
	Shock and Classification / 101	
	MODS and Organ Failure / 105	
Chapter 8	Preoperative Medication in General Surgery	110
	Antibiotics Treatment for Perioperative Treatment / 110	
	Other Medication / 112	
Chapter 9	Prevention and Treatment of Postoperative Complications	116
	Fever / 116	
	Wound Infection and Dehiscence / 117	
	Pulmonary Complications / 119	
	DVT / 125	
	Postoperative Jaundice / 126	
	Complications Followed Gastrectomy / 126	
	Pancreatitis / 127	
	Diabetic Ketoacidosis / 128	
	Cerebrovascular Accidents / 128	
	Wound Infection and Dehiscence / 130	
	Renal Failure / 131	
	DIC / 132	
	Abdominal Compartment Syndrome / 133	
	Addisonian Crisis / 134	
	Urinary Retention / 135	

	Pseudomembranous Colitis / 135	
	Others / 136	
Chapter 10	Intravenous Prescription and Surgical Nutrition	137
	Fluid Therapy / 137	
	How to Prescribe IV Injection / 139	
	Nutritional Status and Deficiency / 142	
	Total Parenteral Nutrition / 144	
	Overload Injection and Hypovolaemia / 146	
	Enteral Nutrition / 147	

General-Relevant Diseases

Chapter 11	Trauma and Abdominal Injury	149
	Diagnosis and Treatment / 149	
	Head and Neck Injury / 156	
	Lung and Heart Injury / 158	
	Abdominal Trauma / 163	
	Vascular Injury / 167	
	Miscellaneous Trauma Facts / 168	
Chapter 12	Burns and Environmental Damage	170
	Definition and Physiology of Burn / 170	
	Classification / 171	
	Complications of Burns / 174	
	Treatment / 175	
	Burns due to Other Causes / 178	
	Environmental Damage Altitude Sickness / 180	
	Decompression Sickness / 181	
	Sunstroke / 182	
	Frostbite / 182	
	Electrical Injuries / 182	
	Dog Bites / 183	
	Snake Bite / 183	
	Bee Sting / 184	
	Cat Bite / 184	



Chapter 13	Tumors and Surgical Oncology	185
	General Outline /	185
	Diagnosis and Tumor marker /	188
	Treatment Methods /	192
	Cancer Prevention /	203
	Oncological Emergencies /	204
	Soft tissue Sarcoma /	207
	Lymphoma /	210
	Skin Lesions /	212
	Melanoma /	214
	Skin Tumor-like Lesions /	219
	Skin Graft /	222
	Desmoid Tumor /	223
	Cancer Metastasis /	225
	Tumor-Associated Syndrome /	228
	Pleural Effusion /	229
	Differential Diagnosis of Pulmonary Nodules /	230
	Children Cancers /	231
Chapter 14	Transplantation	232
	Outline /	232
	Kidney Transplant /	238
	Liver Transplantation /	239
	Pancreas Transplantation /	242
	Intestinal Transplantation /	243
	Complications after Organ Transplantation /	243

Neck Diseases

Chapter 15	Thyroid and Parathyroid Disease	247
	Anatomy and Physiology /	247
	Diagnosis and Differential Diagnosis /	248
	Goiter and Thyroiditis /	250
	Hyperthyroidism and Thyroid Crisis /	255
	Hypothyroidism /	259
	Thyroid Cancer /	261
	Parathyroid Disease /	272
	Surgery /	272

Chapter 16	Differential Diagnosis of Neck Mass	278
	Differential Diagnosis /	278
	Thyroglossal Duct Cyst /	282
	Cystic Hygroma /	284
	Branchiogenic Anomalies /	285

Breast Diseases

Chapter 17	Breast Disease	291
	Regional Anatomy /	291
	Risk Factors Associated with Breast Cancer /	293
	Clinical Presentation of Breast Cancer /	293
	Diagnosis of Breast Cancer /	294
	Surgery for Breast Cancer /	299
	Postoperative Complications /	303
	Hormonal Therapy /	305
	Special Types of Breast Cancer /	308
	Screening /	312
	Male Breast Cancer /	313
	Fibroadenoma and Phyllodes Tumor /	314
	Male Breast Disease /	315
	Other Breast Diseases /	317
	Differential Diagnosis of Breast Mass and Nipple Discharge /	321

Acute Abdomen and Peritonitis

Chapter 18	Acute Abdomen and Peritonitis	327
	Acute Abdomen /	327
	Peritonitis /	332
	Abdominal Paracentesis /	336
	Pneumoperitoneum /	338
	Abdominal Compartment Syndrome /	339
	Meconium Peritonitis /	340

Gastrointestinal Diseases

Chapter 19	Gastroduodenal Diseases	345
	Anatomy and Physiology /	345
	Peptic Ulcer /	346



	Benign Tumor and GIST / 352	
	Diseases of Stomach / 353	
	Gastric Cancer / 354	
	Postoperative Complications / 359	
	Duodenal Ulcers / 361	
	Gastric Lymphoma / 366	
	Duodenal Stricture / 368	
	Obesity Surgery / 369	
Chapter 20	Intestinal Obstruction	373
	General Outline / 373	
	Small Bowel Obstruction / 376	
	Pseudo-Obstruction and Ogilvie Syndrome / 382	
	Large Bowel Obstruction / 384	
	Meconium / 384	
	Other GI Obstructions / 386	
	Surgical Radiology / 387	
Chapter 21	Small Intestine Diseases	392
	Applied Anatomy / 392	
	Wilkie's Syndrome / 394	
	Meckel's Diverticulum / 395	
	Acute Necrotizing Enteritis / 397	
	Small Bowel Tumor / 398	
	Short Bowel Syndrome / 408	
	Intestinal Tuberculosis / 409	
	Intestinal Intussusception, Ameba and GI Tract Duplication / 410	
	Mesenteric Vascular Disease / 416	
	Special Postoperative Sequence of Small Resection / 420	
Chapter 22	Disease of Appendix	422
	Appendicitis / 422	
	Appendiceal Tumor / 433	
Chapter 23	Colon Disease	438
	Regional Anatomy / 438	
	Colon Cancer / 438	
	Hirschsprung's Disease and Megacolon / 447	
	Intestinal Malrotation / 451	

	Bowel Volvulus / 452	
	Colorectal Polyps and Adenoma / 455	
	Gardner's Syndrome / 458	
	Diverticular Disease of the Colon / 460	
	Other Colonic Diseases / 463	
	Intussusception / 467	
	Intestinal Fistula / 468	
	Ostomy and Fistula / 472	
Chapter 24	Inflammatory Bowel Disease	474
	Crohn's Disease / 476	
	Ulcerative Colitis / 481	
Chapter 25	Rectal Disease	485
	Regional Anatomy / 485	
	Incidence, Clinical Presentation and Diagnosis of Rectal Disease / 486	
	Surgery for Rectal Cancer / 488	
Chapter 26	Anal Disease	495
	Hemorrhoids / 496	
	Anorectal Fistula and Abscess / 499	
	Anal Fissure / 502	
	Anal Canal Tumor / 504	
	Fecal Continence / 507	
	Rectal Proplapse / 508	

Liver, Bile Duct and Pancreas Diseases

Chapter 27	Liver Cirrhosis and Portal Hypertension	515
	Portal Hypertension / 515	
	Hepatic Encephalopathy / 522	
	Budd-Chiari Syndrome / 525	
Chapter 28	Liver Diseases	530
	Anatomy / 530	
	Classification of Liver Function / 534	
	Liver Tumor / 536	
	Benign Liver Tumor / 543	
	Liver Abscess / 546	

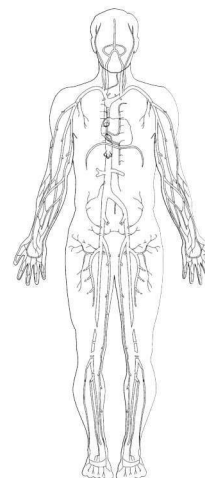


	Liver Cyst / 549	
Chapter 29	Gallbladder and Bile Duct Disease	558
	Basic Knowledge / 558	
	Gallbladder Diseases / 563	
	Common Bile Duct / 569	
	Cholangiocarcinoma / 574	
	Jaundice / 575	
	Surgical Procedure / 577	
	Choledochal Cyst / 577	
Chapter 30	Pancreatic Diseases	588
	Anatomy and Physiology / 588	
	Pancreatitis / 589	
	Pancreatic Abscess and Cyst / 596	
	Pancreatic and Peri-Ampullary Carcinoma / 600	
	Other Pancreatic Neoplasm / 603	
	Surgical Procedures / 608	
	Other Pancreatic Disease / 611	
Chapter 31	Spleen Diseases	614
	Regional Anatomy and Function / 614	
	Hypersplenism and Hyposplenism / 615	
	Splenic Injury / 616	
	Splenic Tumors / 617	
	Splenic Abscess / 618	
	Other Splenic Diseases / 619	
	Surgical Indications and Complications for Splenectomy / 621	
Others		
Chapter 32	Upper and Lower GI Bleeding	625
	Upper GI Bleeding / 627	
	Lower GI Bleeding / 630	
Chapter 33	Disease of Abdominal Wall, Omentum and Retroperitoneum	635
	Mesenteric Ischemia / 635	
	Vitello-Intestinal Duct Diseases / 637	
	Retroperitoneal Fibrosis / 637	

	Mesenteric Cyst / 639	
	Vesicourachal Diseases / 641	
	Others / 642	
Chapter 34	Hernia	645
	Groin Hernias / 645	
	Inguinal Hernia Repair / 649	
	Femoral Hernia / 655	
	Miscellaneous Hernias / 656	
Chapter 35	Vascular Disease	663
	Arterial Disease / 663	
	Peripheral Vascular Disease / 666	
Chapter 36	Laboratory Values and Their Clinical Significance	690
	Routine Examination Values and Their Values / 690	
	Common Lab Examinations and their Clinical Significance / 697	
Chapter 37	Emergent Management of Acute Poisoning	701
	Overview / 701	
	Pesticide Poisoning / 703	
	Rodenticide Poisoning / 704	
	Paraquat Poisoning / 704	
	Organophosphate Poisoning / 705	
	Food Poisoning / 706	
	Mushroom Poisoning / 706	
	Nitrite Poisoning / 707	
	Carbon Monoxide Poisoning / 707	
	Balloon Fish Poisoning / 708	
	Acknowledgements / 709	
	Reference / 710	

Chapter 1

Surgery Overview, Anesthesia and Asepsis Technique



Surgery Overview

■ What is minimally invasive surgery

Surgery done with only a small incision or no incision at all, such as through a cannula with a laparoscope or endoscope. It has the following benefits: quicker recovery, shorter hospital stays, less scarring and less pain.

■ What is fast track surgery

Fast track surgery combines various techniques used in the care of patients undergoing elective operations. The methods used include epidural or regional anesthesia, minimally invasive techniques, optimal pain control, and aggressive postoperative rehabilitation, including early enteral (oral) nutrition and ambulation. The combination of these approaches reduces the stress response and organ dysfunction and therefore greatly shortens the time required for full recovery.

■ What is day surgery

Day surgery is completed in one day, so the person doesn't have to stay in hospital overnight. Day surgery may require a local, regional or general anesthetic.

■ What is informed consent

Informed consent is more than simply getting a patient to sign a written consent form. It is a process of communication between a patient and physician that results in the patient's authorization or agreement to undergo a specific medical intervention.

■ What are the main items of informed consent

In the communications process, the physician providing or performing the



treatment and/or procedure (not a delegated representative), should disclose and discuss with the patient: ① diagnosis; ② the nature and purpose of a proposed treatment or procedure; ③ the risks and benefits of a proposed treatment or procedure; ④ alternatives (regardless of their cost or the extent to which the treatment options are covered by health insurance); ⑤ the risks and benefits of the alternative treatment or procedure; ⑥ the risks and benefits of not receiving or undergoing a treatment or procedure.

In turn, the patient should have an opportunity to ask questions to elicit a better understanding of the treatment or procedure, so that he or she can make an informed decision to proceed or to refuse a particular course of medical intervention.

Knowledge about Anesthesia

■ What is anesthesia

It is a pharmacologically induced and reversible state of amnesia, analgesia, loss of consciousness, loss of skeletal muscle reflexes or decreased stress response, or all simultaneously. These effects can be obtained from a single drug which alone provides the correct combination of effects, or a combination of drugs (such as hypnotics, sedatives, paralytics and analgesics) to achieve very specific combination of results. This allows patients to undergo surgery and other procedures without the distress and pain they would otherwise experience.

■ What are the types of anesthesia

- 1) Local anesthesia: anesthesia of a small confined area of the body (lidocaine for an elbow laceration).
- 2) Epidural anesthesia: anesthetic drugs/narcotics infused into epidural space.
- 3) Spinal anesthesia: anesthetic drugs/narcotics infused into the thecal sac.
- 4) Regional anesthesia: blocking of the sensory afferent nerve fibers from a region of the body (radial nerve block).
- 5) General anesthesia, triad: ① unconsciousness/amnesia; ② analgesia; ③ muscle relaxation.
- 6) GEAT: general endotracheal anesthesia.

■ What is local anesthesia

The anesthetic drug is usually injected into the tissue to numb just the specific location of the body requiring minor surgery, for example, on the hand or foot.

■ What is regional anesthesia

It renders a larger area of the body insensate by blocking transmission of nerve

impulses between a part of the body and the spinal cord. Two frequently used types of regional anesthesia are spinal anesthesia and epidural anesthesia. The anesthesiologist makes an injection near a cluster of nerves to numb the area of one's body that requires surgery.

■ What is a spinal anesthesia block

A spinal block is commonly used to help patients undergo pain relief. A spinal block involves placing a small needle in the back and into the fluid surrounding the spinal cord. A local anesthetic is then injected, temporarily numbing the lower half of the body.

■ What are the side effects of spinal anesthesia

- 1) Hypotension(neurogenic shock).
- 2) Urinary retention.

■ What is an epidural anesthesia

An epidural is commonly used for pain control after surgery and during childbirth. An epidural involves placing a small needle in the back and then positioning a small tube (catheter) near the nerves exit in the spinal cord. Medications are delivered through the catheter, temporarily numbing regions of the body.

■ What is the advantage of epidural analgesia

Analgesia without decreased cough reflex.

■ What are the side effects of a spinal block or epidural

Side effects of a spinal block or epidural may include minor back pain, headache or difficulty urinating. Other less common side effects may include bleeding or infection at the needle site, or very rarely, nerve damage.

■ What is general anesthesia

It refers to inhibition of sensory, motor and sympathetic nerve transmission at the level of the brain, resulting in unconsciousness and lack of sensation.

■ What is dissociative anesthesia

It uses agents that inhibit transmission of nerve impulses between higher centers of the brain (such as the cerebral cortex) and the lower centers, such as those found within the limbic system.



■ What are the risks of anesthesia

All operations and all anesthetics have some risks, and they are dependent upon many factors including the type of surgery and the medical condition of the patient. Fortunately, adverse events are very rare.

■ What medications should be discontinued or controlled to take prior to surgery

1) Aspirin and plavix are used to treat patients with certain disorders of the heart and blood vessels, and they can cause increased bleeding during surgery.

2) Diuretics are commonly prescribed for treating high blood pressure. This class of drugs can cause changes to electrolyte levels, such as potassium.

3) Diabetic patients are commonly treated with insulin or oral agents. The doctors may decrease usual morning insulin dose or discontinue one's oral agents before surgery.

■ Given examples of the following terms

1) Local anesthetic: lidocaine, bupivacaine.

2) Regional anesthetic: lidocaine, bupivacaine.

3) General anesthesia: isoflurane, enflurane, sevoflurane, desflurane.

4) Dissociative agent: ketamine.

■ Why does lidocaine burn on injection and what can be done to decrease the burning sensation

Lidocaine is acidic, which causes the burning; add sodium bicarbonate to decrease the burning sensation.

■ Why does some lidocaine come with epinephrine

Epinephrine vasoconstricts the small vessels, resulting in a decrease in bleeding and flow in the area; this prolongs retention of lidocaine and its effects.

■ In what locations is lidocaine with epinephrine contraindicated

Fingers, toes, penis, and so forth, because of the possibility of ischemic injury/necrosis resulting from vasoconstriction.

■ What are the side effects of morphine

1) Constipation.

2) Respiratory failure.

3) Hypotension (from histamine release).

4) Spasm of sphincter of Oddi (use pethidine/demerol in pancreatitis and biliary surgery).