Diagnosis and Treatment Indications in Hand Surgery

Introduction

The hand is a complex and intricate structure that allows us to perform a wide range of tasks, from the delicate touch of a surgeon to the powerful grip of a construction worker. When the hand is injured or diseased, it can have a devastating impact on our ability to live our lives to the fullest.

This book is a comprehensive guide to the diagnosis and treatment of hand conditions. It is written by a team of experienced hand surgeons who have dedicated their careers to helping patients regain the use of their hands.

The book begins with an overview of the anatomy of the hand and the common conditions that affect it. This

information is essential for understanding the diagnosis and treatment of hand problems.

The book then goes on to discuss the various types of hand injuries, including fractures, dislocations, lacerations, burns, and infections. Each type of injury is discussed in detail, including the causes, symptoms, and treatment options.

The book also covers the various types of hand arthritis, including osteoarthritis, rheumatoid arthritis, psoriatic arthritis, gouty arthritis, and septic arthritis. Each type of arthritis is discussed in detail, including the causes, symptoms, and treatment options.

The book also discusses the various types of hand tumors, including benign tumors, malignant tumors, soft tissue tumors, bone tumors, and nerve tumors. Each type of tumor is discussed in detail, including the causes, symptoms, and treatment options.

Finally, the book discusses the various types of hand surgery, including microsurgery, rehabilitation, and prosthetics. Each type of surgery is discussed in detail, including the indications, techniques, risks, and benefits.

This book is an essential resource for anyone who wants to learn more about the diagnosis and treatment of hand conditions. It is written in a clear and concise style that is easy to understand, even for those with no medical background.

Book Description

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Chapter 1: Hand Anatomy and Examination

The Bones of the Hand

The hand is a complex and intricate structure, consisting of 27 bones, 34 muscles, and a network of nerves, blood vessels, and tendons. The bones of the hand are divided into three groups: the carpal bones, the metacarpal bones, and the phalanges.

Carpal Bones

The carpal bones are eight small bones that form the wrist. They are arranged in two rows, with four bones in each row. The proximal row of carpal bones includes the scaphoid, lunate, triquetrum, and pisiform bones. The distal row of carpal bones includes the trapezium, trapezoid, capitate, and hamate bones.

Metacarpal Bones

The metacarpal bones are five long bones that connect the carpal bones to the phalanges. They are numbered 1 through 5, with the first metacarpal bone being the thumb. The metacarpal bones are responsible for providing stability to the hand and allowing for movement of the fingers.

Phalanges

The phalanges are the finger bones. There are 14 phalanges in each hand, with three phalanges in each finger and two phalanges in the thumb. The proximal phalanges are the bones closest to the hand, the intermediate phalanges are the middle bones, and the distal phalanges are the bones at the tips of the fingers.

The bones of the hand are held together by a network of ligaments and tendons. Ligaments are tough, fibrous bands of tissue that connect bones to bones. Tendons are strong, flexible cords of tissue that connect muscles to bones.

The bones of the hand are responsible for a wide range of movements, including grasping, pinching, and writing. They also provide support for the hand and protect the delicate structures inside the hand.

Chapter 1: Hand Anatomy and Examination

The Muscles of the Hand

The hand is a complex and intricate structure, made up of 27 bones, 30 joints, and over 120 muscles. The muscles of the hand are responsible for a wide range of movements, from the delicate touch of a surgeon to the powerful grip of a construction worker.

The muscles of the hand can be divided into two groups: the intrinsic muscles and the extrinsic muscles. The intrinsic muscles are located within the hand itself, while the extrinsic muscles are located in the forearm and attach to the bones of the hand.

The intrinsic muscles of the hand are responsible for fine movements of the fingers and thumb. They are divided into three groups: the thenar muscles, the hypothenar muscles, and the interosseous muscles.

The thenar muscles are located on the palm side of the hand at the base of the thumb. They are responsible for abducting the thumb (moving it away from the palm), flexing the thumb, and rotating the thumb.

The hypothenar muscles are located on the palm side of the hand at the base of the little finger. They are responsible for abducting the little finger, flexing the little finger, and rotating the little finger.

The interosseous muscles are located between the metacarpal bones (the long bones of the palm). They are responsible for abducting and adducting the fingers (moving them away from and towards the middle finger), and for flexing and extending the fingers at the middle joint.

The extrinsic muscles of the hand are responsible for moving the fingers and thumb. They are divided into two groups: the flexor muscles and the extensor muscles.

The flexor muscles are located on the palmar side of the forearm. They are responsible for flexing the fingers and thumb at the middle and distal joints.

The extensor muscles are located on the dorsal side of the forearm. They are responsible for extending the fingers and thumb at the middle and distal joints.

The muscles of the hand are innervated by the median nerve, the ulnar nerve, and the radial nerve. The median nerve innervates the muscles of the thenar eminence and the lateral two lumbricals. The ulnar nerve innervates the muscles of the hypothenar eminence, the interosseous muscles, and the medial two lumbricals. The radial nerve innervates the extensor muscles of the hand and the brachioradialis muscle.

The muscles of the hand are a complex and delicate system that allows us to perform a wide range of tasks. When the muscles of the hand are injured or diseased,

it can have a devastating impact on our ability to live our lives to the fullest.

Chapter 1: Hand Anatomy and Examination

The Nerves of the Hand

The hand is innervated by a complex network of nerves that control sensation, movement, and sweating. These nerves originate in the cervical spine and travel down the arm to the hand. The main nerves of the hand are the median nerve, the ulnar nerve, and the radial nerve.

Median Nerve

The median nerve is the largest nerve in the hand. It originates in the C6-T1 nerve roots and travels down the arm through the carpal tunnel. The median nerve provides sensation to the palm of the hand, the thumb, the index finger, the middle finger, and the radial half of the ring finger. It also controls movement of the thumb and the index finger.

Ulnar Nerve

The ulnar nerve originates in the C8-T1 nerve roots and travels down the arm to the hand. The ulnar nerve provides sensation to the little finger and the ulnar half of the ring finger. It also controls movement of the little finger and the intrinsic muscles of the hand.

Radial Nerve

The radial nerve originates in the C5-C7 nerve roots and travels down the arm to the hand. The radial nerve provides sensation to the back of the hand, the thumb, and the index finger. It also controls movement of the wrist and the thumb.

Damage to any of these nerves can cause a variety of problems, including numbness, tingling, pain, weakness, and paralysis. Nerve damage can be caused by a variety of factors, including trauma, arthritis, and diabetes.

Examination of the Hand Nerves

The examination of the hand nerves is an important part of the physical examination. The examiner will test sensation in the hand by lightly touching the skin with a cotton swab or a pin. The examiner will also test motor function by asking the patient to perform certain movements, such as flexing and extending the fingers.

If the examiner suspects that a nerve is damaged, they may order additional tests, such as an electromyography (EMG) or a nerve conduction study. These tests can help to confirm the diagnosis of nerve damage and to determine the extent of the damage.

Treatment for nerve damage depends on the cause of the damage. If the nerve damage is caused by a trauma, the treatment may involve surgery to repair the nerve. If the nerve damage is caused by a medical condition, such as arthritis or diabetes, the treatment may involve medication or physical therapy.

This extract presents the opening three sections of the first chapter.

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