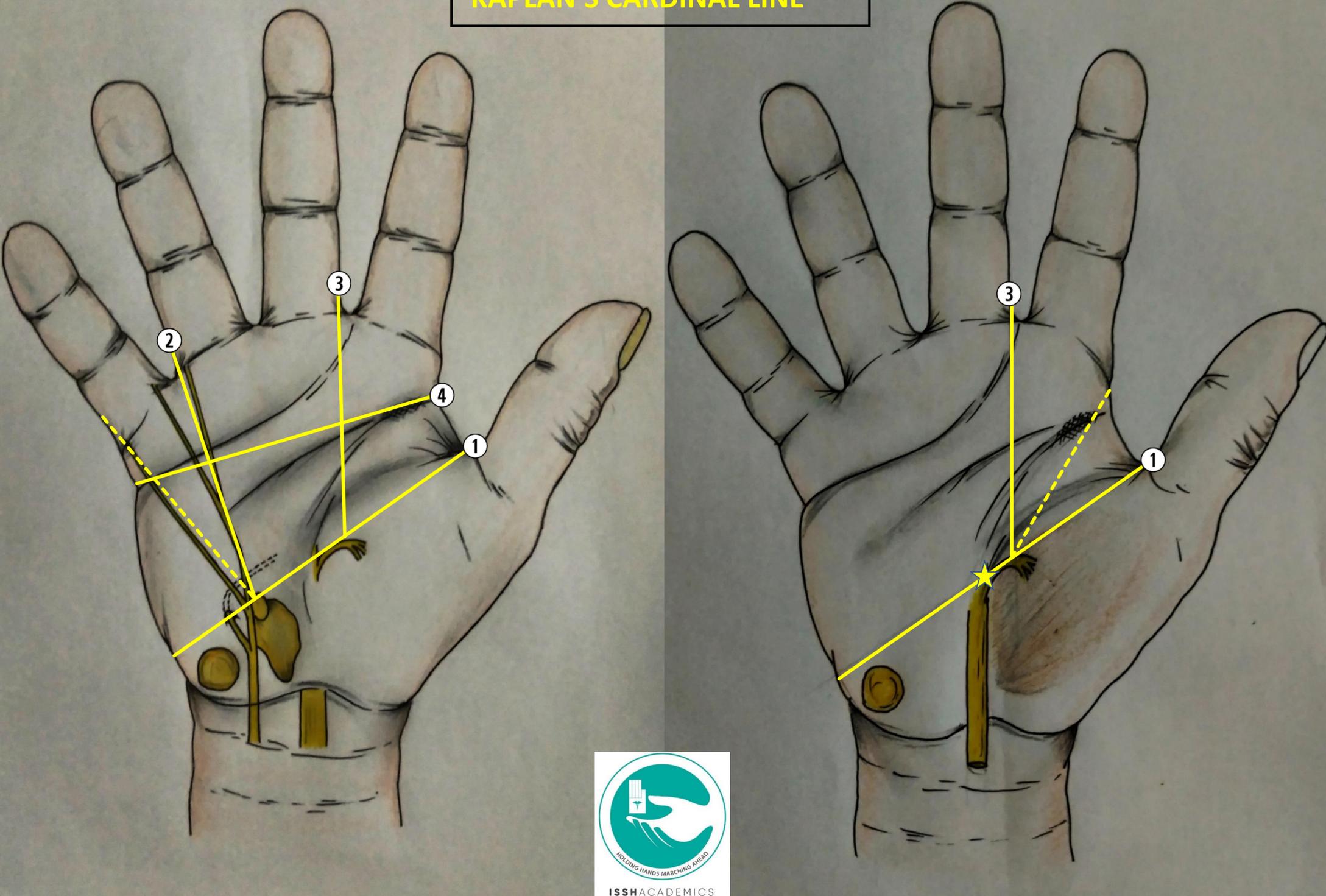


KAPLAN'S CARDINAL LINE



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Kaplan defined the cardinal line (First line) of the hand as a line drawn from the apex of the interdigital fold between the thumb and index finger toward the ulnar side of the hand, parallel with the proximal palmar crease and passing about 4 mm to 5 mm distal to the pisiform bone. With this line the relationships between many important deep structures of the hand can be established.

A second line, drawn along the ulnar border of the ring finger in a proximal direction toward the wrist, transecting the cardinal line of the hand at a point slightly radial and distal to the pisiform. The point of intersection of these two lines corresponds almost exactly with the tip of the hook of the hamate bone. This point of intersection defines the locations of the ulnar artery and veins and the volar sensory branches of the ulnar nerve, which pass directly over the hook of the hamate. A point halfway between the hook of the hamate and the pisiform is the point of penetration of the deep branch of the ulnar nerve into the deep, retro-tendinous part of the hand.

The line uniting the tip of the hook of the hamate to the ulnar side of the 5th metacarpal traces the course of the ulnar digital nerve of the little finger.

The intersection of the thenar crease with the cardinal line (Marked asterisk) corresponds to the emergence of the motor branch of the median nerve.

A third line can be drawn along the radial border of the middle finger in a proximal direction until it intersects the cardinal line, which locates the point of penetration of the motor branch of the median nerve into the thenar muscles.

A fourth line can be drawn from the flexion crease on the palmar surface of the second metacarpal head to the flexion crease on the palmar surface of the fifth metacarpal head. A trapezoidal area is thus formed by the lines drawn from the radial border of the middle finger to the cardinal line, from the ulnar border of the ring finger to the cardinal line, the cardinal line itself, and the line from the second to the fifth metacarpal heads. This trapezoid indicates the locations of the vascular arches of the hand. The distal convexity of the deep palmar arch is located slightly proximal to the cardinal line and the superficial palmar arch is found proximal to the distal transverse line.

A line drawn from the point of intersection of the cardinal line and the radial line of the middle finger to the radial side of the palmo-digital crease of the index finger outlines the course of the digital nerve to the radial side of the index finger.