

Sagittal Bands: Are They Really Sagittal?

M Singh, R Singh, D Singh

Citation

M Singh, R Singh, D Singh. *Sagittal Bands: Are They Really Sagittal?*. The Internet Journal of Hand Surgery. 2007 Volume 2 Number 1.

Abstract

Sagittal bands or the transverse lamina arising from the palmar plate and the inter metacarpal ligaments at the neck of the metacarpal form a part of the dorsal digital expansion and the intrinsic muscle tendons work together to keep the extensor tendons centralised over the joint .

Term Sagittal band was first used by Tubiana and Valentin in 1964.

Winslow in 1746 described these as ' lateral extensions of extensor tendons'.

Other terms used for these structures are Transverse Fibres (Bunnell 1944), Transverse Lamina (Landsmeer 1949) , dorsal hood (Poirter and Charpy 1899) Metacarpo phalyngeal girdle(Zancolli 1979) (5)

As a student of the anatomy of the hand and the human body one is forced to wonder how did the term Sagittal band come to such popular use .

INTRODUCTION

Sagittal bands or the transverse lamina arising from the palmar plate and the inter metacarpal ligaments at the neck of the metacarpal form a part of the dorsal digital expansion and the intrinsic muscle tendons work together to keep the extensor tendons centralised over the joint .

Term Sagittal band was first used by Tubiana and Valentin in 1964.

Winslow in 1746 described these as ' lateral extensions of extensor tendons'.

Other terms used for these structures are Transverse Fibres (Bunnell 1944), Transverse Lamina (Landsmeer 1949) , dorsal hood (Poirter and Charpy 1899) Metacarpo phalyngeal girdle(Zancolli 1979) (5)

Figure 1

Figure 1: anatomy of the dorsal digital expansion

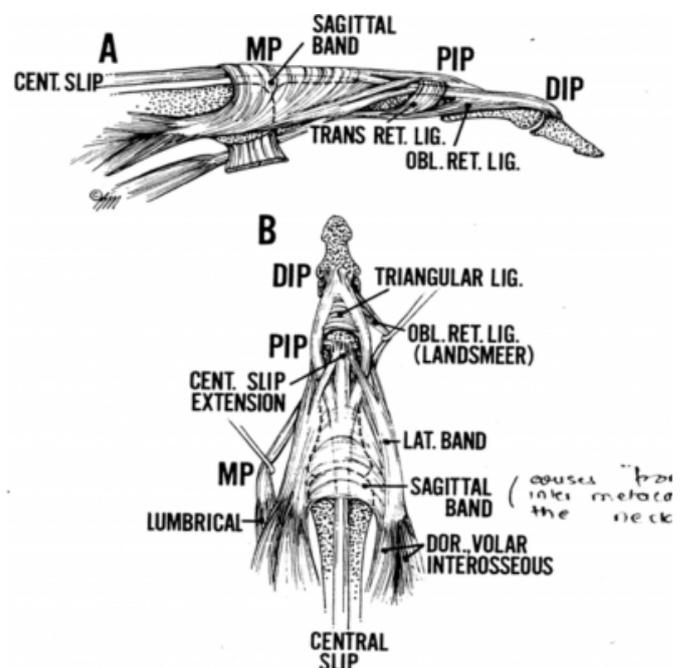
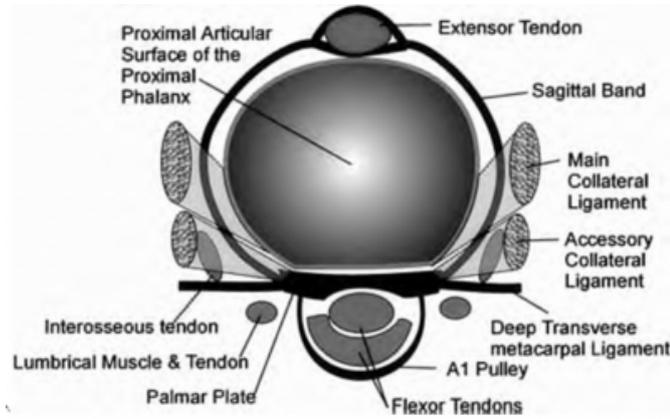


Figure 2

Figure 2: Drawing illustrates transverse view of the main structures of the MCP joint after removal of the metacarpal head.



As a student of the anatomy of the hand and the human body one is forced to wonder how did the term Sagittal band come to such popular use . Are these bands really sagittal ?

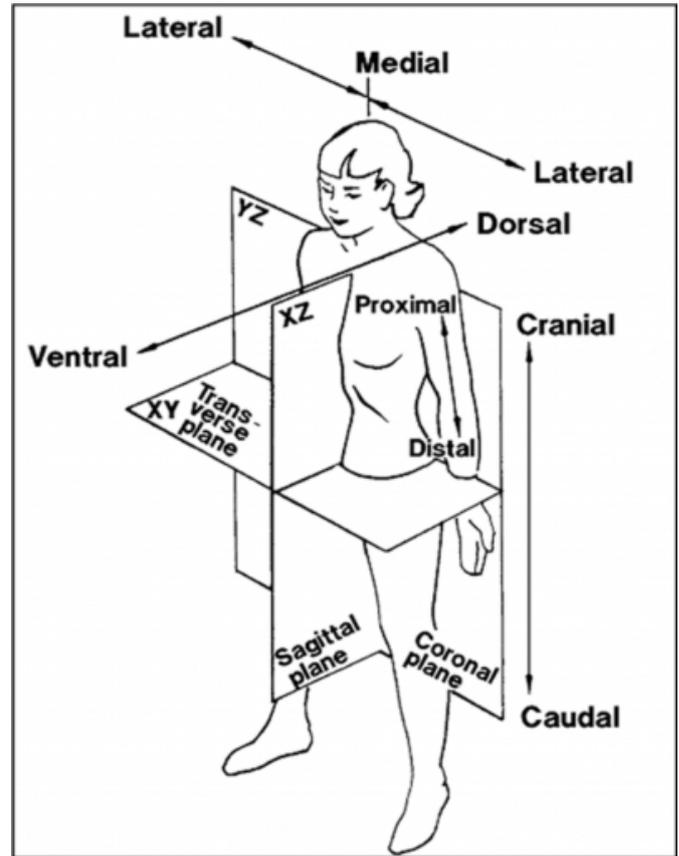
As a discussion on the validity of the term let us review the planes in the human body in figure 2

For descriptive purposes the body is supposed to be in the erect posture, with the arms hanging by the sides and the palms of the hands directed forward. The median plane is a vertical antero-posterior plane, passing through the center of the trunk. This plane will pass approximately through the sagittal suture of the skull, and hence any plane parallel to it is termed a sagittal plane. A vertical plane at right angles to the median plane passes, roughly speaking, through the central part of the coronal suture or through a line parallel to it; such a plane is known as a frontal plane or sometimes as a coronal plane. A plane at right angles to both the median and frontal planes is termed a transverse plane.(1)

As evident from above anatomical discussion sagittal band is a misnomer and should be described as a transverse rather than a sagittal band .

Figure 3

Figure 3: planes in anatomical description



after reviewing the above chart and applying the general principles of anatomical description it is clearly understood that the sagittal plane would run perpendicular to the plane of the sagittal bands. The bands actually run in a transverse plane when we examine the human body in an anatomical position .

Dynamic changes in SB fiber orientation were observed with different positions of the MCP and wrist joints. The fibers were perpendicular (0°) to the extensor tendon in neutral position, by Christopher M. Young MD and Ghazi M. Rayan MD(4) . It is very easy to orient ourselves to the position of extensor tendons which run in sagittal plane and the sagittal bands run perpendicular to the plans of extendor tendons ie in a transverse plane .

CORRESPONDENCE TO

Rahul Singh Raj nursing Home 23 A Park Road Allahabad India 211001 E-mail singhrahul1975@googlemail.com

References

1. Grays anatomy
2. MR Imaging of the Metacarpophalangeal Joints of the Fingers Conventional MR Imaging and MR Arthrographic

Sagittal Bands: Are They Really Sagittal?

Findings in Cadavers¹ Nicolas H. Theumann, MD, Christian W. A. Pfirrmann, MD, Jean-Luc Drapé, MD, PhD, Debra J. Trudell, RA and Donald Resnick, Radiology 2002; 222:447-452
3. Greens textbook of hand surgery
4. The extensor retinacular system at the metacarpophalangeal joint. Anatomical and histological

study. Rayan GM, Murray D, Chung KW, Rohrer M. J Hand Surg [Br]. 1997 Oct;22(5):585-90
5. Zancolli E: Structural and Dynamic Bases of Hand Surgery. Philadelphia, JB Lippincott, 325--360, 1979
6. The microvascular anatomy of the distal extensor tendon. RA Warren, RNM Kay, SH Norris. J. Hand Surg. Vol 13-B 1988. p 161.

Author Information

Mukul Singh, MBBS , D. Orth .

Raj Nuraing Home

R. Singh, MBBS MRCS

Raj Nuraing Home

D.R. Singh

Professor and Head, Department of Surgery, MLN Medical College