

General reviewer comments:

CR1: Generally, the issue is important for both the anatomists and surgeons in terms of the wrist surgery. In the present study, even though you define limited descriptive statistical measurement results, sample size and the data are insufficient to make generalizations in terms of clinical applications. I still remain unconvinced how this information is relevant to a surgeon. It is in a select small sized cadaveric study and, without some comparison to gender and bilaterality, there is very little that can be extracted from this analysis.

Response: This study will aid surgeons in creating a replicable surgical incision that will prevent damage to underlying structures and perform a complete release of the first dorsal extensor compartment with a precise and targeted dissection. An incision that measures 3mm proximal from the radial styloid, 2cm from Lister's tubercle, and 5mm from the radial wrist crease will safely place surgeons at the first dorsal compartment. This incisional plan can be used in the operating room every time this surgical dissection needs to be performed. While our sample size was small, our findings were consistent throughout all cadaveric models. This can be seen in the histogram as well. There was a wide age range of the cadavers and both sexes represented as well as laterality were represented about equally. A follow up study with more specimens would help to validate our results, but with our data being uniform with very small variation, our data is sufficient to support our current hypothesis. Please refer to the highlighted sections in the main manuscript which details this topic.

CR2: The number of cases in the study is quite small. It is not known whether the right and left extremities belong to the same individual. The gender information of the specimens is not included.

Response:

Six cadaveric forearms were obtained to perform this study including four left and two right forearm specimens. In total, four cadavers were male and two were female. All cadaver specimens were obtained from different individuals. The two right forearm specimens were from

a sixty-year-old male and a thirty-seven-year-old female specimen. Of the four left forearm specimens, three were from male cadavers while one forearm was from a female cadaver. The age ranges for the left forearm cadavers included a fifty-five-year-old male, fifty-eight-year-old male, thirty-three-year-old male, and a thirty-two-year-old female.

CR3: The anatomical terminology (as description of the structures for example muscle names etc.) of the manuscript should be rearranged according to Federative Committee on Anatomical Terminology as uniform.

Response: All anatomic terminology and associated abbreviations are appropriately listed based on the Federative Committee of Anatomical Terminology. All anatomic names and abbreviations used are standard among the literature.

CR4: Figure legends and picture indications should be added. The figures are not clear enough without marks. They should be more descriptive for readers, needs to be explain clearly on the text, as well.

Response: Please refer to all figures included. All figures now possess descriptive legends and explanations that will allow readers to understand and follow the data. The table and figures are also well described in the text as well.

CR5: Displaying the results in a histogram should yield much more information about distribution of measurements compared to mean, range and standard deviation. Additionally, statistical method information of the results must be given in the material method section.

Response: Please refer to the histogram included as Figure 1. This details that all data were consistent among the six cadaveric models with very little variability. Table 1 with descriptive statistical analysis re-demonstrates that finding as well.

Statistical Analysis:

Cadaveric measurement data were analyzed using descriptive statistics. The mean, standard deviation and standard error values were calculated manually using standard equations. Confidence intervals were then computed manually using standard formulas prior to the creation of the data figures and tables. Statistical review of the study was performed by a biomedical statistical team at Allegheny General Hospital.

CR6: It is written exactly as follows in the paper: “ Important other parameters that were documented included the presence or absence of the superficial radial nerve overlying the first dorsal compartment, additional compartment sub-sheaths, number of APL tendon slips, and the presence of a pseudo retinaculum. Only two cadavers had a superficial branch of radial nerve that crossed over the first dorsal compartment and retinaculum proximally (7.03mm and 13.36mm).” However, you never mention the relationship of this branch with the superficial orientation bony points during its course in the area. It is important to the superficial branch of the radial nerve and its distance to superficial orientation landmarks (such as radial styloid process and also Lister's tubercle) for surgical implications. You not mention the number and course of possible branches of this branch. The anatomical results as description of the superficial branch and its branches and also relations and with the surrounding adjacent structures and also distance between origin point of the branch and the bony anatomical landmarks should be added. You also should mention the average length of the extensor retinaculum from its proximal to distal extent.

Response: The course of the main branch of the superficial radial nerve in the two cadaveric models in which it was found is now described. Since only two cadavers had this branch, full documentation of the branch from the remainder of the superficial landmarks was not performed

as it would not be reliable. Instead, the distance of the superficial radial nerve from the extensor retinaculum was documented in each case. Please refer to the text below:

The average length of the extensor retinaculum from its proximal to its distal length was 26.82 ± 3.34 mm. Therefore, the length from the thumb interphalangeal joint to the thumb tip gives a reasonable estimate of about 3mm and can be used as a measurement to determine the overall length of the extensor retinaculum. Only two cadavers had a superficial radial nerve that crossed over the first dorsal compartment. In two cadaver specimens, the superficial radial nerve was initially encountered at 7.03mm and 13.36mm proximal to the most proximal aspect of the extensor retinaculum. In both of those dissections, the superficial radial nerve was seen continuing its course directly dorsal over the extensor retinaculum and radial to the radial styloid. The superficial radial nerve was not encountered even with thorough dissection in the remaining four cadavers.

CR7: Inclusion and exclusion criteria should be added to the study.

Response: Inclusion criteria for our study included cadaver models within age ranges of 30-60 with no prior trauma history or surgical intervention to the wrist and hand region that would otherwise confound results from a soft tissue standpoint. Exclusion criteria included cadavers with prior history of wrist or hand surgical intervention. Cadavers with a history of surgical history including retained hardware, prior fractures, history of skin grafting, or soft tissue or bony trauma were excluded. All specimens included the entire forearm and hand from the proximal ulna to the fingertips. Any specimens with evidence of prior amputations related to trauma or vascular disease were excluded.

CR 8: References that published before the year 2000 should be updated to most recent information available.

Response: All references have been changed to be after the year 2000 and are now documented appropriately with PMID and DOI numbers.