

The Significance of Struthers

Brightside, December, 2013

By Dr. Derek Conte

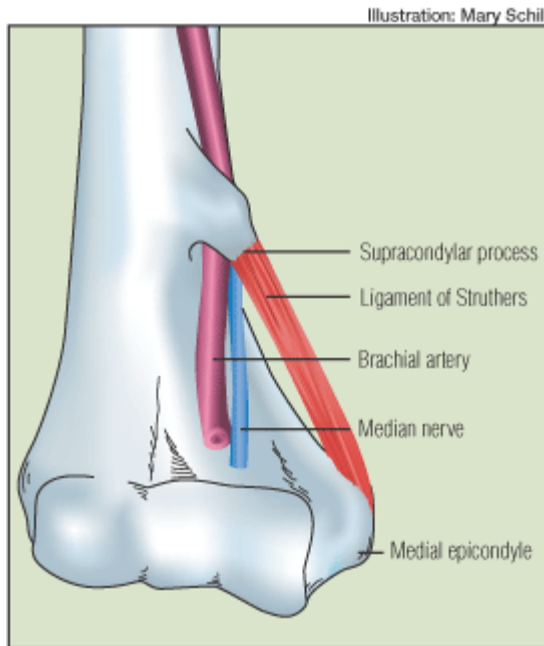


FIGURE 3. Diagram of a supracondylar process demonstrates the relationship of the supracondylar process to the ligament of Struthers, brachial artery, and median nerve.

A middle-aged female patient recently presented with multiple complaints, including pain in the right hand, forearm, and upper arm midway between the armpit and the inner elbow at the “funny bone”. The right hand appeared flattened and the muscles at the base of the thumb, thin. It was impossible for her to flex the tip of the thumb on command and there was numbness, tingling, and coldness in the right forearm, hand and first three fingers along the distribution of the Median nerve.

Typical reasons for Median nerve insult are misalignments in the mid-to-lower cervical spine, compression of the nerve by the Scalene muscles of the neck, by the Pronator Teres muscle of the inner forearm or, most famously, compression in the wrist called Carpal Tunnel Syndrome. Blunt trauma is also a cause but that was ruled out in the initial history.

Over six visits we successfully applied specific chiropractic adjustments and modalities to clear most of the patient’s problems, but the right arm and hand symptoms were not resolving satisfactorily, even after addressing individually each of the main areas of causality listed above. Intuitively, I felt there must be some structural abnormality in the inner arm I could not see or feel, so sent her to a vascular neurosurgeon, with whom I co-manage certain patients, for an MRI of the area in question. As fate would have it, I ran into the surgeon at a conference that same night and discussed the case with him. He mentioned “Ligament of Struthers” and the research I did on this was fascinating.

In the late 1840's a Scotsman named John Struthers, a passionate comparative anatomist and colleague of Charles Darwin, first described a ligament found in only 1% of humans. It runs from a bony hook (supracondylar process) on the shaft of the inner upper arm to the medial epicondyle of the inner elbow. It forms a shape akin to a violin's bow, creating a space through which the median nerve and the brachial artery pass, compressing both (this fit perfectly with the patient's symptoms). The ligament was considered vestigial because, though it served no useful purpose in humans, it was an important functional structure in other so-called "lower" animals such as carnivores and marsupials and made clear passage for the same structures it inhibited in humans.

As Struthers was an early advocate of the theory of evolution, he corresponded with Darwin about this finding and suggested the ligament was inherited from a common ancestor. Darwin would use this argument in the first chapter of his world-shaking book, DESCENT OF MAN:

"Dr. Struthers, who has closely attended to the subject, has now shewn that this peculiarity is sometimes inherited, as it has occurred in a father, and in no less than four out of his seven children. When present, the great nerve invariably passes through it; and this clearly indicates that it is the homologue and rudiment of the supra-condyloid foramen of the lower animals.....But if the occasional development of this structure in man is, as seems probable, due to reversion, it is a return to a very ancient state of things, because in the higher Quadrumana ("4-handed ones", such as primates) it is absent."

So, as some regard the coccyx as a vestigial remnant of a distant past, so may it be here. Regardless of one's beliefs on how humans came to be what we are, it is fascinating nonetheless, and I am gratified by the fact that this patient now has a better chance of improvement.

Dr. Derek Conte is co-founder of Chiropractic Specialists on Concord Rd. in Smyrna. For questions, call: 404-784-6008, and visit drderekconte.com for archives of articles, mission trip photos and testimonials.