

THE DIFFERENTIAL DIAGNOSIS OF NON-SPECIFIC PARAESTHESIA ABOUT THE WRIST OR HAND USING A FLOW CHART.

JOHN REGGARS D. C. *

Abstract: A common clinical presentation in the Chiropractor's office is that of vague and unilateral paraesthesia of the wrist or hand. Often the patient is unable to identify any definite dermatomal pattern and in such cases an accurate diagnosis becomes somewhat difficult. The following paper, incorporating a flow chart, provides the clinician with a logical sequence for the clinical exam in an attempt to arrive at the correct diagnosis, particularly those with mechanical causes.

Key Words: Paraesthesia, Wrist, Hand, Fingers.

Chusid (1) defines paraesthesia as a pain that "consists of abnormal sensations, numbness, tingling and formication (crawling sensations)." This symptom is quite common and is regularly seen in the Chiropractic office as part of an overall symptomatology or as the chief presenting complaint.

The cause may originate from local pathology in the wrist or hand, or may be due to referral from other regions of the nervous system. (There are multiple etiologies for this complaint). As there are pathophysiological changes which ultimately result in this abnormal sensation - Listed below are the principal causes of paraesthesia:-

Neural Compression or Entrapment - causing neural ischemia to either the peripheral nerves, spinal cord or cortex.

Vascular Disease - from conditions such as Diabetes and Atherosclerosis.

Poisons - either metal, drugs or organic substances.

Deficiency states and Metabolic disorders. e.g. Alcoholism, Gastrointestinal disease, uremia, Systemic Lupus Erythematosus.

Inflammatory Diseases and Infections e.g. Herpes, Polyneuritis.

Genetic Diseases e.g. Progressive hypertrophic neuropathy trauma.

Psychogenic states e.g. Hysteria

Specific diseases of the nervous system e.g. Multiple Sclerosis.

As a general rule, most systemic causes of paraesthesia of the hand usually have either bilateral involvement or concurrent sensory changes in other regions and therefore the differential diagnosis becomes somewhat easier. There are, however, a few exceptions to this rule, Diabetic Amyotrophy being one. (2) Furthermore atypical presentations are not rare and the patient may notice only the hand involvement. Therefore systemic causes must be considered in every patient presenting with this symptom. (6)

* PRIVATE PRACTICE:
33 WANTIRNA ROAD, RINGWOOD, VIC, 3134. PH. 879 5555

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Conversely, when there is no specific sensory distribution, any part of the nervous system which involves sensory elements to the hand must be examined. If a clear digital, peripheral or dermatomal pattern can be established then a diagnostic focus can be developed regarding the level of involvement. (8) That is if the whole hand is affected then the lesion must lie above the deferential of the brachial plexus, or if the pattern is confined to the ulna side of the 4th finger and the whole of the 5th finger the lesion is more likely to be at the elbow or below. (6) However, any examination must be from the spinal to the fingers as the "Double Crush" syndrome is quite common. (7) In any event, as Cyriax states, the site of the lesion is always proximal to the outer paraesthetic margin. (6)

Probably the most important aspect of the clinical examination is an accurate and detailed history, which may lead the clinician to a provisional diagnosis or at least a narrower scope for further investigation.

Previous history relating to systemic disorders associated with peripheral neuropathy such as Diabetes and Alcoholism would alert the Chiropractor to a possible systemic etiology: as would occupation in respect of compression or entrapment causes. Questioning as to the mode of onset, aggravating and relieving factors, whether the symptoms are constant or intermittent, worse at night or influenced by weather changes would also provide valuable diagnostic clues. (8)

Even though the history may reveal the possible etiology, a thorough physical examination must be performed, commencing at the head and neck and terminating at the fingers. A full neurological exam including cranial nerves, upper limb reflexes, (including sensory and motor components) must also be performed. Obviously the sensory component of the examination is of the utmost importance but as a large proportion of conditions involving paraesthesia also have associated muscle weakness and other sensory disturbances, a thorough neurological examination is essential.

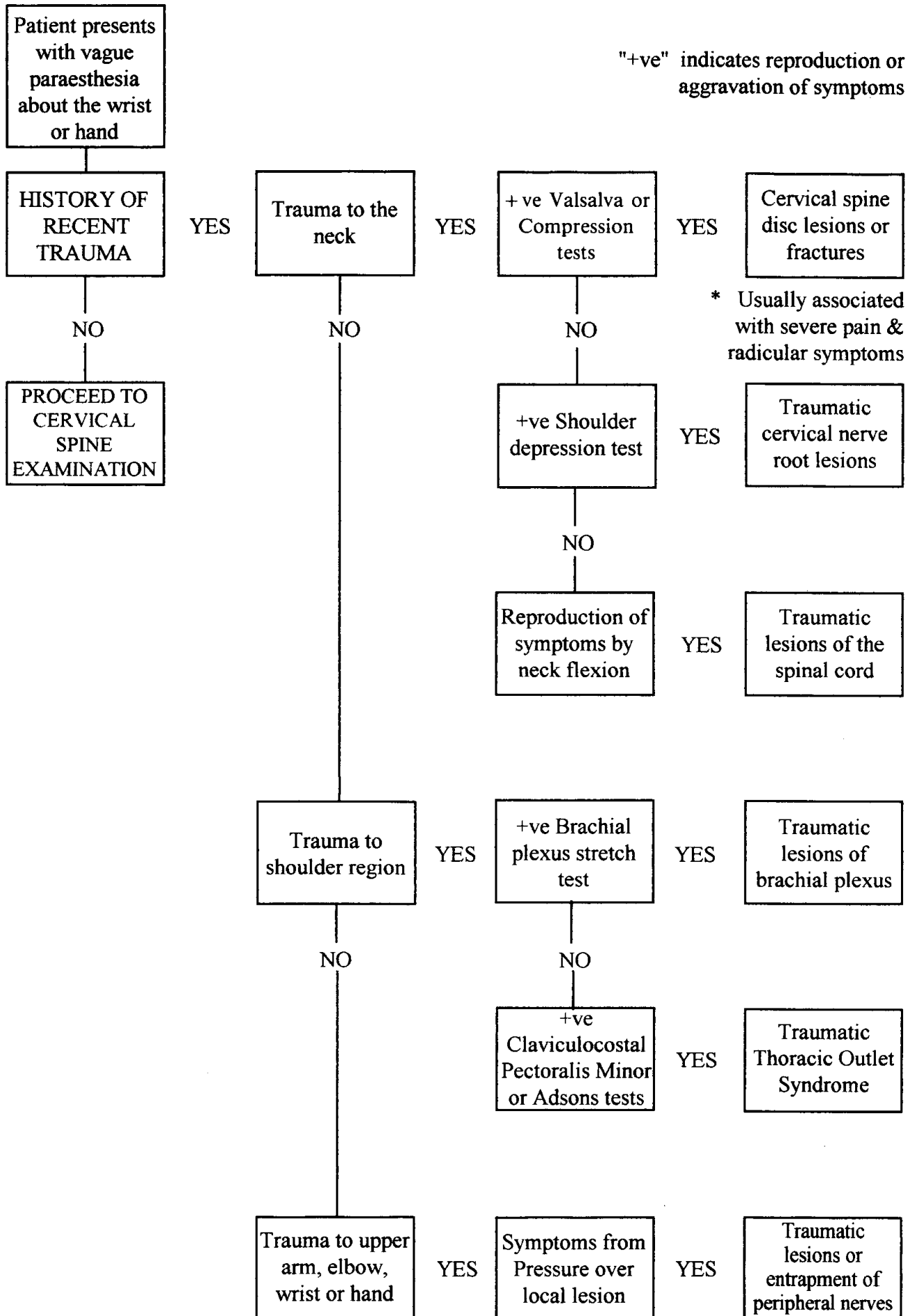
Visual and palpatory examination is of no less importance to eliminate infections, masses, and skin lesions associated with systemic disease. It is only after this broad examination is completed that individual orthopaedic and neurological testing can be performed.

The accompanying flow chart, with few exceptions, is primarily designed to reproduce or exacerbate the presenting symptoms by mechanical means. However, this is not always achievable even if the lesion is of mechanical origin and further investigative procedures including plain film x-ray, CT scanning, MRI, Nerve

Conduction Testing, EMG and Thermography may be needed to arrive at an unequivocal diagnosis.

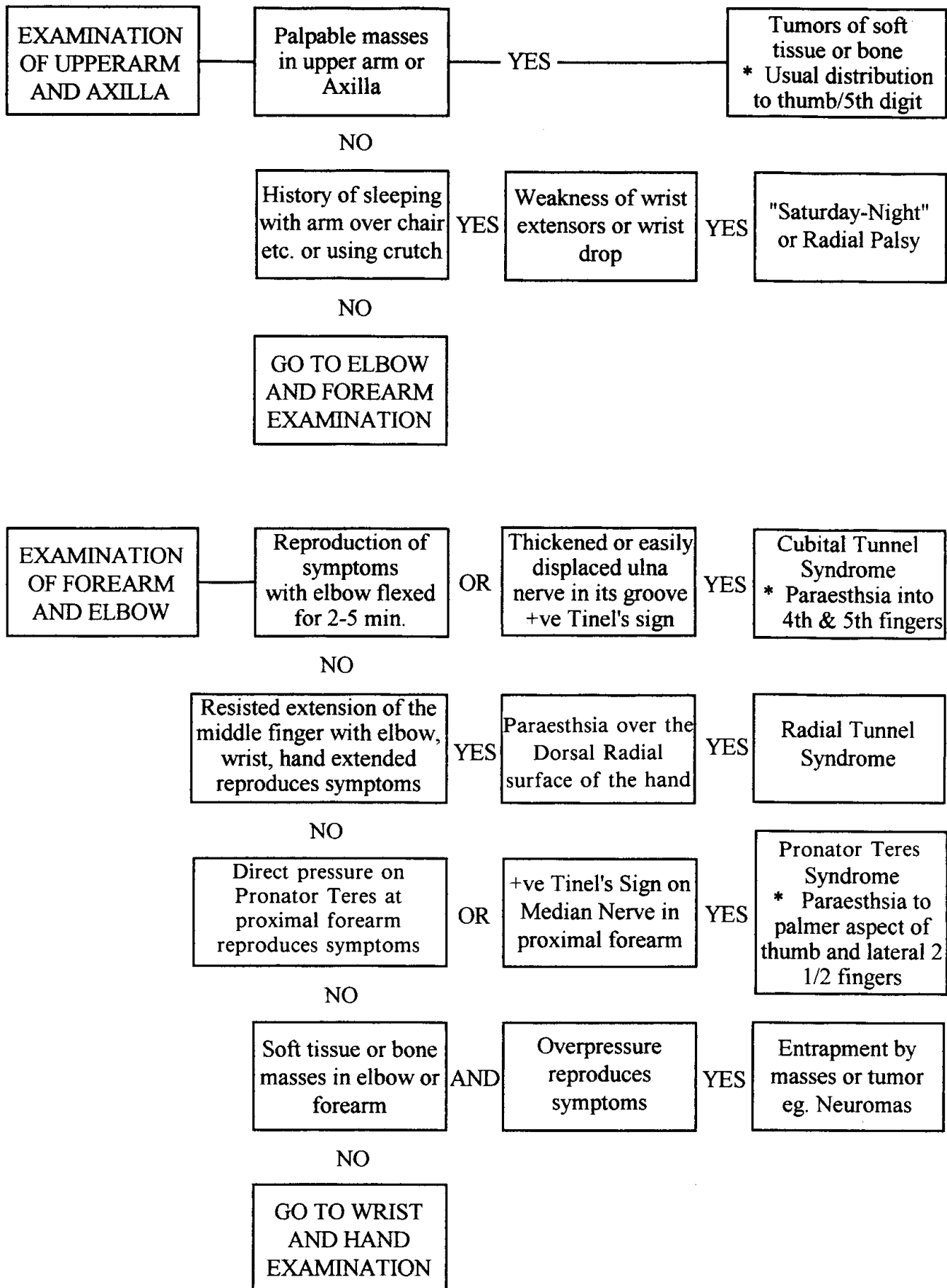
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**WRIST-HAND PARAESTHESIA
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EXAMINATION OF CERVICAL SPINE	YES	+ve Compression/Brachial plexus stretch/Shoulder depression/anterior Door Bell Sign or Hperextension	YES	Osseous foraminal encroachment Cervical nerve root lesion or disc lesion
		NO		
		+ve Valsalva Test	YES	Cervical disc lesion or space occupying lesion
		NO		
		Reproduction of symptoms from pressure on scalene Trigger points	YES	Active Scalene Trigger Points
		NO		
EXAMINATION OF THORACIC SPINE AND SHOULDER		+ve Thoracic Outlet Tests	YES	Thoracic Outlet Syndrome
		NO		
		Reproduction of symptoms from pressure over T2-7	YES	T4 Syndrome (9)
		NO		
		Trigger points in Latissimus Dorsi, Infraspinatus, Teres minor, Subscapularis reproducing symptoms	YES	Active Trigger Points. * Check for other TPs to rule out Fibromylagia
		NO		
		Palpable mass or reproduction of symptoms from pressure over supra clavicular fossa	YES	Space occupying lesion eg Pancoasts Tumor. * Confirm with xray
	NO			
		GO TO UPPER ARM AND AXILLA EXAMINATION		



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