

TIMING OF PERIPHERAL NERVE REPAIR

GUY BROOME

GRADES OF NERVE INJURY

- NEURAPRAXIA
- AXONOTMESIS
- NEUROTOMESIS
- MIXED PICTURE
- LATE ENTRAPMENT

WALLERIAN DEGENERATION

- DISTAL NEURAL TUBE RESORBED BY Schwann cells
- NEURONAL SPROUTING---NB SURGERY SHOULD RE-CONNECT THE NEURAL TUBE TO PREVENT NEUROMA
- GROWTH AT 1 mm PER DAY
- RE-CONNECTION WITH END ORGANS

OPEN INJURY

- IMMEDIATE EXPLORATION / REPAIR IS UNIVERSAL CONSENSUS
- LATE PRESENTING PARTIAL INJURIES DO POORLY
- BEWARE OF ACUTE PARTIAL INJURIES

CLOSED INJURY OUTCOME

- VERY FEW STUDIES OF NON OPERATIVE TREATMENT
- Gelberman 1990' s suggested 85% recover well without surgery
- Consensus is that the other 15% do very poorly with chronic pain, poor sensory and motor function

Anecdotal clinical evidence

- If a nerve is severed accidentally during surgery recovery is very rapid and good quality

BASIC SCIENCE EVIDENCE Andrew Hart

- RAT SCIATIC NERVE MODEL
- ANALYSIS OF CENTRAL CELL BODIES AND SENSORY / MOTOR END ORGANS
- NERVES REPAIRED IMMEDIATELY OR UP TO 3 MONTH DELAY
- RAPID RESORPTION OF SENSORY CELL BODIES / RECEPTORS WITH DELAY, NOT QUITE SO BAD FOR MOTOR EQUIVILENTS

TRIAGE FOR CLOSED INJURIES

- HOW DO WE DISTINGUISH THOSE THAT NEED SURGERY ?
- ENERGY OF INJURY---GUSTILLO ANALOGY
- NEUROPATHIC PAIN
- SPECIFIC SITES eg DISTAL HUMERUS

PRAGMATISM

- IF YOU ARE NEAR A NERVE TO FIX THE FRACTURE, LOOK AT THE NERVE AND DECOMPRESS IT
- DETAILED REPEAT EXAMINATION
- NEUROPHYSIOLOGY OF LIMITED USE IF REPEATED
- SCAR TISSUE DEVELOPS AFTER 10 DAYS (THE GOLDEN HOURS)

CHRONIC PAIN

- IN PART DUE TO NEUROMA FORMATION
- MELZAC AND WALL GATE THEORY
- PHYSICAL METHODS AS WELL AS DRUGS