RADIAL NERVE LESION AFTER MALPOSITION AND SEDATION BY CONTINUOUS TARGET CONTROLLED INFUSION OF PROPOFOL FOR EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY

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Extracorporeal shock wave lithotripsy (ESWL) is the gold standard treatment for ureteral calculosis. Radial neuropathy related to anesthetic or surgical procedures is a very rare complication and it is generally related to compression factors[1]. To date and to our knowledge, there are no descriptions of radial nerve lesion after ESWL procedure. A 36 years old female patient (61 Kg) with ureter calculosis disease, presented to ambulatory ESWL on the left lumbar region. She had previous history of post-spinal anesthesia headache. Pre-operative examinations were normal.

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A peripheral venous catheter was inserted on the right hand and the patient was monitored with oximetry, cardioscopy and non-invasive blood pressure measurements on the right lower limb. The patient was positioned on the table with the left arm abducted, bent elbow and the left hand on the back of the head for a better calculus approach. The patient received midazolam (2.0 mg), sufentanil (10 mcg) and a continuous infusion of propofol (plasma target 1.2 mcg.ml^{-1}) in order to maintain sedation between level 4 and 5 on the Ramsay scale. Four thousand two hundred and twenty-five shock waves were administered until a partly fragmented calculus was shown on fluoroscopy during a 62-minute procedure. The patient was home discharged home after 95 minutes of the end of the procedure without complaints. The next day, the patient presented to the emergency service complaining of slight paresthesia on the lateral region of the left forearm with slight paresia on fingers' extensors and paresia of the brachioradial muscle. She was referred to a neurologist who diagnosed radial neuropathy. Electroneuromyography presented moderate injury of sensitive and motor fibers compatible to radial neuropraxia. Six months later, the patient came for a new urological procedure with a discrete improvement of the clinical picture. The radial nerve is originated from fibers of C6, C7, C8 and T1. It traces along the spiral groove of the humerus, along with the deep radial artery, and exits through the lower 1/3 of the lateral side of the upper arm, penetrating the external fascia. The radial nerve is situated near the skin, and is

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covered with a thin fat layer[2]. In the lateral region of the arm, about 3 cm proximal to lateral epicondyle of the humerus, it is possible to compress the nerve against the bone, what may be a mechanism of nerve injury. Anesthetic causes of radial nerve lesion include automatic pressure monitors, contention brackets, venoclysis, radial artery puncture and malpositioning[1]. A lesion of the ulnar nerve has been reported during the administration of ESWL for the treatment of ureteral calculus and was attributed to bad positioning[3]. In our patient, the genesis of the lesion seems to involve an unfavorable positioning of the limb and/or contact of the limb with the lithotripter machine, exposing the radial nerve to shock waves, directly or indirectly. In a recent study, it was shown that extracorporeal shock waves have caused multiple microscopically damages on rats´ spinal cord structures, including degenerated mitochondria and destruction of myelin sheaths[4]. These findings may imply that some types of shock waves are harmful for nervous tissue. Nevertheless, it is interesting to note that ESW therapy have been administered to treat some painful syndromes[5,6]. This is the first case that reports radial nerve injury after ESWL associated with malposition and sedation by continuous target controlled infusion of propofol.

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