

Clinical case

Subcutaneous rupture of the superficial branch of the radial nerve at the wrist. A case report and review of literature

Rupture sous-cutanée du rameau superficiel du nerf radial au poignet. À propos d'un cas et revue générale de la littérature

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Abstract

Isolated neuropathy of the superficial branch of the radial nerve (SBRN) is a rarely recognized pathology. It was initially described by Wartenberg in 1932. Various causes have been published. We report a case of an unusual injury of the SBRN at the wrist, never been previously reported in the literature. A 40-year-old woman presented with pain and paresthesia over the area of the lateral aspect of the wrist, thumb and first web two months after a blunt trauma of the left forearm. After failure of conservative treatment, surgical exploration found a neuroma of one branch of the SBRN. No distal nerve stump was found. Neuroma resection was performed and the nerve was transposed and embedded into the flexor pollicis longus muscle. With a six months follow-up, the result was satisfactory.

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Keywords: Superficial branch of the radial nerve; Wrist; Subcutaneous rupture

Résumé

La neuropathie du rameau superficiel du nerf radial (RSNR) est une pathologie rarement diagnostiquée. Elle a été décrite initialement par Wartenberg en 1932. De nombreuses étiologies ont été décrites. Nous rapportons un cas exceptionnel de rupture sous-cutanée du RSNR au poignet chez une femme de 40 ans qui présentait un syndrome douloureux et des paresthésies au niveau de la main gauche suite à un traumatisme fermé de l'avant-bras remontant à deux mois. Après échec du traitement conservateur, la conduite thérapeutique a consisté en une exploration chirurgicale qui a objectivé un volumineux névrome d'une branche du RSNR. Le moignon distal du nerf n'a pas été trouvé. Une résection du névrome avec enfouissement du nerf dans le corps musculaire du flexor pollicis longus a alors été réalisée. Au dernier recul de 6 mois, le résultat clinique était satisfaisant.

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Mots clés : Rameau superficiel du nerf radial ; Poignet ; Rupture sous-cutanée

1. Introduction

Isolated neuropathy of the superficial branch of the radial nerve (SBRN) is a rare condition [1]. This pathology was initially described by Wartenberg in 1932 through a study of five cases [2]. There are many etiologies responsible for this neuropathy: iatrogenic lesions after a surgical intervention for

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De Quervain's tendinopathy [3,4] associated or not with Wartenberg's syndrome [2,5], most commonly after an injury to the distal third of the forearm [5].

We report an exceptional case of subcutaneous rupture of the superficial branch of the radial nerve at the wrist, caused by crushing from a blunt trauma to the left forearm.

2. Observation

A 40-year-old right-handed female patient, a secretary with no previous medical history or particular trauma, was seen in consultation for pain associated with paresthesia affecting the dorso-radial side of the distal third of the forearm with irradiation towards the thumb. Two months beforehand she had had been the victim of a direct trauma, a fall caused by a metal object falling on her. The object had hit her on the distal third of her left forearm. At the time of trauma the patient had felt a strong electrical discharge in her left hand, followed by pain and paresthesia. The initial treatment had consisted of wrist immobilization to relieve the pain, and anti-inflammatory medication. The patient was not able to resume work after the accident. The pain was exacerbated by wearing a watch or a bracelet. Two months after the accident the clinical examination found an extremely painful palpable swelling, approximately 4 cm upstream from the styloid process of the radius, with a positive Tinel sign. Only a slight scrape was noted at this point on the skin's surface. The clinical symptoms were worsened by forced pronation movements of the forearm associated with ulnar flexion of the wrist. Faced with the absence of any improvement in symptoms and suspecting a post-traumatic neuroma, it was decided that a surgical exploration should be made.

The intervention was performed under locoregional anesthesia with an axillary block and a pneumatic tourniquet inflated at the root of the upper limb. The surgical approach was centered on the palpable mass, along the axis of the limb (Fig. 1). The surgical exploration found a large neuroma which had developed on one of the branches of the RSNR just after the point where it divided (Fig. 2). Following complete neurolysis and downstream dissection, it was not possible to find a distal



Fig. 1. The surgical approach used in the absence of a wound from the injury.

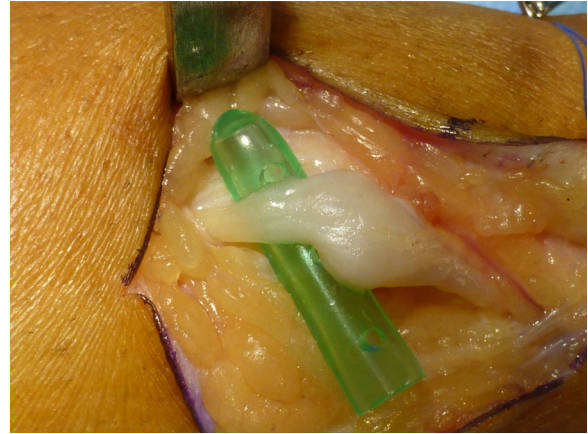


Fig. 2. Finding the neuroma on a dividing branch of the superficial branch of the radial nerve.

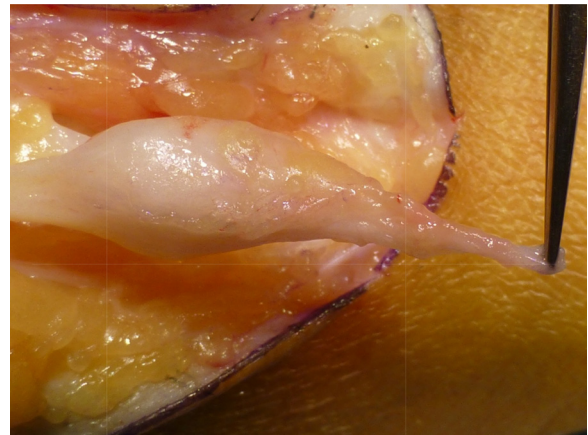


Fig. 3. Complete dissection of the neuroma when no distal stump was found.

stump with nerve bundles. We simply noted a post-traumatic fibrous aspect (Fig. 3). The type of lesion corresponded to nerve section with a post-traumatic neuroma and absence of continuity of the distal nerve. Under these conditions, the neuroma was surgically removed, the nerve branch was buried proximally into the muscle body of the flexor pollicis longus (Figs. 4 and 5). The wrist was protected for about a fortnight, then physiotherapy was begun. The anatomopathological examination confirmed the diagnosis of a post-traumatic neuroma with an absence of nerve bundles, apart from fibrous tissue, within the distal stump.

At a follow-up of six months, the surgical wound was of good quality. The Tinel sign had completely disappeared. A residual area of hypoesthesia could simply be noted on the dorsal side of the thumb, corresponding to the nerve territory of this sensory branch.

3. Discussion

There are many etiologies responsible for isolated neuropathies of the SBRN. They may be due to internal compression from the brachioradialis muscle or a lipoma, or external

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