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Case Report

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Complicated History of a Shoulder in a Diabetic Adult: *Staphylococcus Aureus* Infection Following Local Corticosteroid Infiltration in a Shoulder with an Unrecognized Parsonage–Turner Syndrome: A Case Report

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ABSTRACT

Painful shoulder is a common reason for consultation in adults, often presenting as degenerative pseudo-paralysis [1]. Nevertheless, etiologies are multiple, including neurological causes, which may result in true paralysis [1].

We report the case of a 67-year-old diabetic patient who developed an infection of the right shoulder following corticosteroid infiltration. Etiological investigation concluded in a Parsonage–Turner syndrome that had been mistakenly considered a degenerative disorder.

We emphasize the atypical nature of this clinical case, as no similar cases were found in the literature.

Keywords: Infection; Infiltration; Paralysis; Parsonage–Turner

INTRODUCTION

Painful shoulder is often of intrinsic origin, related to bone, cartilage, ligament, and/or tendon lesions. However, an extrinsic origin, essentially neurological, remains possible [1].

The use of corticosteroid infiltration is frequent, but this procedure is not trivial due to the infectious risk, especially in diabetic patients [2-4].

We report the case of a 67-year-old diabetic adult presenting with infection of the right shoulder following local corticosteroid infiltration for a painful shoulder. After urgent surgical drainage and identification of *Staphylococcus aureus* as the causative pathogen, etiological investigation concluded in an unrecognized Parsonage–Turner syndrome.

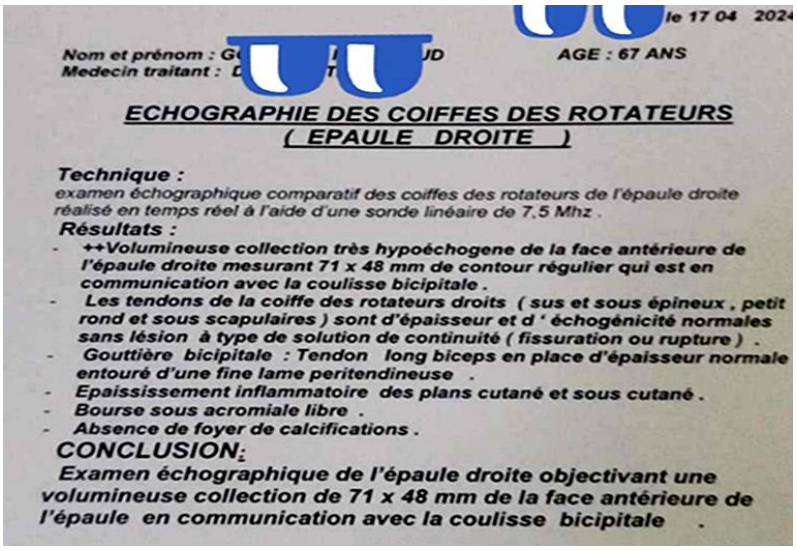
CASE PRESENTATION

This concerns patient G.M., a 67-year-old diabetic male on oral antidiabetic treatment, who presented to the emergency department with an infectious picture of the right shoulder, including fever at 39°C, profuse sweating, intense pain, and complete functional impairment of the right shoulder, with no history of trauma.

The patient had consulted an orthopedist 18 days earlier for limitation of mobility of the right shoulder associated with muscle weakness evolving over

several weeks and becoming increasingly disabling. Analgesic treatment was prescribed.

Fifteen days later, due to lack of improvement, he reconsulted and underwent a corticosteroid infiltration performed by his physician. Upon returning home, he experienced severe throbbing pain associated with fever and sweating. The following day, an ultrasound revealed an anterior collection of the right shoulder and arm, leading to urgent referral to our department (Figure 1).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Nom et prénom : G UD AGE : 67 ANS
Medecin traitant :

ECHOGRAPHIE DES COIFFES DES ROTATEURS
(EPAULE DROITE)

Technique :
examen échographique comparatif des coiffes des rotateurs de l'épaule droite réalisé en temps réel à l'aide d'une sonde linéaire de 7,5 Mhz .

Résultats :
- ++Volumineuse collection très hypoéchogene de la face antérieure de l'épaule droite mesurant 71 x 48 mm de contour régulier qui est en communication avec la coulisse bicipitale .
- Les tendons de la coiffe des rotateurs droits (sus et sous épineux , petit rond et sous scapulaires) sont d'épaisseur et d ' échogénicité normales sans lésion à type de solution de continuité (fissuration ou rupture) .
- Gouttière bicipitale : Tendon long biceps en place d'épaisseur normale entouré d'une fine lame peritendineuse .
- Epaississement inflammatoire des plans cutané et sous cutané .
- Bourse sous acromiale libre .
- Absence de foyer de calcifications .

CONCLUSION:
Examen échographique de l'épaule droite objectivant une volumineuse collection de 71 x 48 mm de la face antérieure de l'épaule en communication avec la coulisse bicipitale .

Figure 1: Emergency ultrasound showing extensive soft tissue infection.

Clinical examination revealed a local inflammatory syndrome with painful reddish swelling of the anterior aspect of the right shoulder and arm (Figure 2).

Figure 2: Clinical presentation in the emergency department.

An anteroposterior shoulder radiograph showed inferior glenohumeral subluxation. In the absence of trauma, a progressive muscular imbalance–related subluxation was suspected [5] (Figure 3).

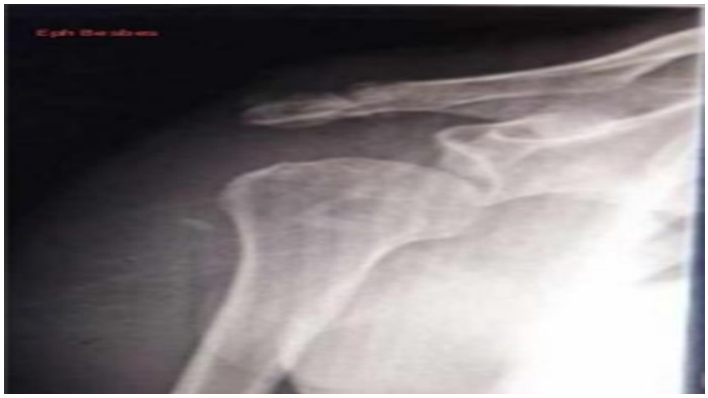


Figure 3: Non-traumatic inferior shoulder subluxation.

Pre-anesthetic biological assessment showed a marked inflammatory syndrome with very high CRP, acute renal failure, and glycemic imbalance.

In the operating room, under general anesthesia, through an anterior deltopectoral approach in its distal part, a large abscess (500 cc) was drained. Samples were taken for bacteriological analysis, followed by copious irrigation and closure over suction drainage.

Glycemic balance and renal function normalized immediately after rehydration measures. Empirical intravenous antibiotic therapy was initiated.

Cytobacteriological examination confirmed infection with *Staphylococcus aureus* sensitive to the empirical antibiotic regimen already initiated.

Early postoperative evolution was favourable. Functional rehabilitation was started, with painless passive mobility up to 90° of abduction and anteversion, and early recovery of active mobility up to 10°.

On day 10, the patient was discharged on oral antibiotic therapy.

Electromyography (EMG) of the right upper limb performed on day 30 revealed an old paralysis of the right upper primary trunk, with signs of reinnervation of the deltoid muscle and ongoing denervation of the biceps brachii (Figure 4A).

a)

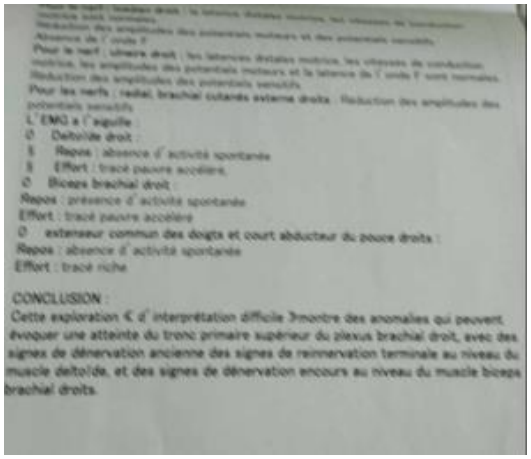
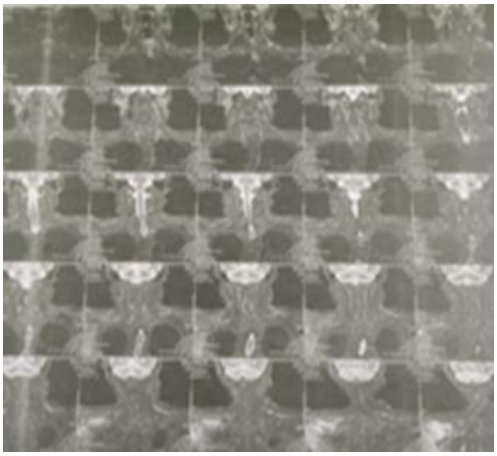


Figure 4: Complementary investigations confirming the diagnosis. 4a) EMG findings.

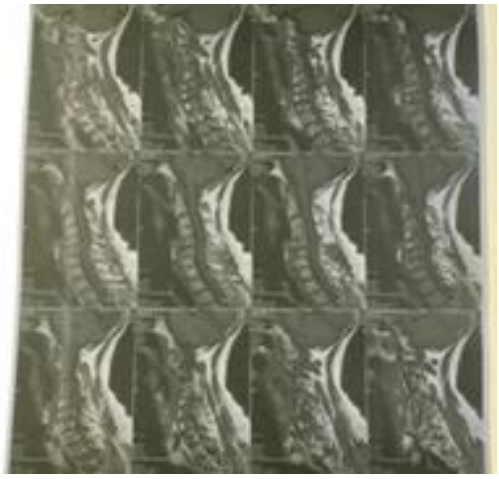
The patient reported sudden inflammatory-type pain at the root of the right upper limb several weeks before the onset of motor deficit, which regressed with self-medication and was followed by progressive muscle weakness, leading to near-total motor deficit and prompting his first consultation.

Given this particular clinical chronology and EMG findings, a diagnosis of Parsonage–Turner syndrome was suspected [6,7]. Magnetic Resonance Imaging (MRI) was required to exclude differential diagnoses and revealed multilevel cervical disc bulges with minimal conflict, without tumoral or compressive pathology [6,7] (Figure 4B, C, D).

4b)



4c)



4d)

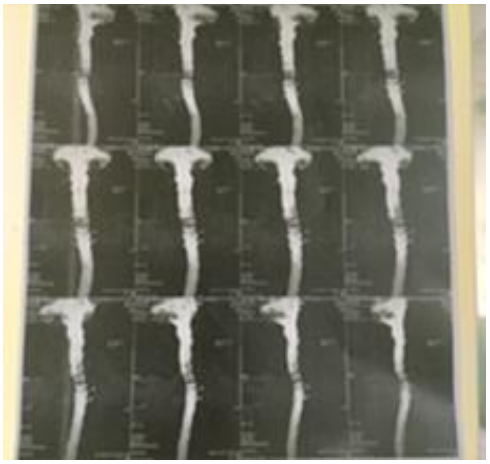


Figure 4: Complementary investigations confirming the diagnosis. 4b, c, d) Cervical MRI images.

Pain resolved up to 90° of abduction and anteversion. Active mobility gradually improved to 30° of abduction and anteversion.

The patient was referred to physiotherapy with regular follow-up appointments.

DISCUSSION

Parsonage–Turner syndrome is an amyotrophic neuralgia due to idiopathic involvement of the brachial plexus, mainly its upper primary trunk [6,7]. It associates sudden, severe pain followed by

paralysis and amyotrophy of the shoulder girdle muscles, rarely affecting distal muscles. A dysimmune hypothesis is most accepted, particularly in the context of infectious or vaccine-related triggers [6-8].

Diagnosis relies on the chronological sequence of symptoms (pain, paralysis, amyotrophy), confirmed by electromyography showing upper trunk involvement [7,8]. MRI may demonstrate amyotrophy and helps exclude other organic plexopathies, especially tumoral or compressive causes.

Treatment is symptomatic, primarily analgesic, with possible corticosteroid use in the acute phase. During the paresis stage, rehabilitation is prioritized.

Recovery occurs in approximately 80% of cases within 6 to 36 months, although recurrence and residual paralysis are not negligible [9].

In our patient, the shoulder history favoured Parsonage–Turner syndrome in the paresis phase, with motor deficits of the deltoid and biceps brachii muscles at initial consultation. Infection following local corticosteroid infiltration is a possible complication, particularly in diabetic patients. However, etiological assessment before such procedures is essential to allow optimal management and potentially avoid corticosteroid therapy in Favor of functional rehabilitation alone [10].

After management of the infection, spontaneous recovery began, and Parsonage–Turner syndrome was diagnosed during the recovery phase through electromyographic exploration.

CONCLUSION

Parsonage–Turner syndrome is a rare condition that should be considered in any painful shoulder. Management should not be random, particularly regarding local corticosteroid infiltration, a procedure often trivialized by physicians despite potentially dramatic complications.

DECLARATIONS

Conflict of interest

The author declares no conflicts of interest in relation to this work.

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Author contributions

The author solely contributed to the conception, design, drafting, and final approval of this manuscript.

Ethical approval

Not applicable, as this article does not contain any studies with human participants or animals performed by the author.

Consent for publication

Not applicable.

Availability of data and materials

No datasets were generated or analysed during the current study.

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