

# Speed's Procedure Used to Treat Chronic Elbow Dislocation

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## ABSTRACT

*In this report, operative treatment for chronic elbow dislocation using Speed's technique is described. Reports on this phenomenon are infrequent. This clinically important pathology is quite uncommon but impacts negatively on a patient's functionality and normal daily activities. We present the case of a 53-year-old woman with a missed diagnosis of elbow dislocation. The patient was unable to function because of pain, stiffness and loss of motion. Her diagnosis was missed in the Emergency Department (ED) and in a general practitioner's office. A correct diagnosis was made three months later. The consultant organized an early date for surgery. The definitive treatment entailed open reduction, VY plasty of the triceps and supplementary fixation using Kirschner (K-wires) wires through the elbow joint (Speed's Procedure). The occurrence, patho-mechanics, operative technique and its outcome are discussed.*

**Keywords:** Chronic elbow dislocation, Speed's procedure

# La Técnica de Speed en el Tratamiento de la Dislocación crónica del Codo

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## RESUMEN

*En este reporte se describe el tratamiento quirúrgico de la luxación crónica del codo utilizando la técnica de Speed. Los reportes sobre este fenómeno son poco frecuentes. Esta patología clínicamente importante es muy poco frecuente, pero tiene un impacto negativo en la funcionalidad y actividades cotidianas del paciente. Presentamos el caso de una mujer de 53 años, a quien no se le diagnosticó a tiempo una dislocación del codo. La paciente era incapaz de funcionar debido al dolor, la rigidez, y la pérdida de movimiento. Su diagnóstico fue pasado por alto en el Departamento de Emergencia y en la consulta con un médico general. El diagnóstico correcto no se hizo sino hasta tres meses más tarde. La consultante organizó la cirugía para una fecha temprana. El tratamiento definitivo comprendía una reducción abierta, plastia en VY del tríceps, y fijación suplementaria con alambres de Kirschner (alambres K) a través de la articulación del codo (técnica de Speed). Se analiza la aparición, la patomecánica, la técnica operativa y sus resultados.*

**Palabras claves:** Dislocación crónica del codo, técnica de Speed

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## INTRODUCTION

Chronic elbow dislocation is a relatively uncommon pathology. Evidence associated with its treatment has been reported from developing countries (1, 2). In particular, the Speed's procedure is an adequate open treatment modality that can improve a patient's functional outcome and enhance the activities of daily living (3, 4). This case discusses the effectiveness of

the surgical intervention and the important lessons learnt in its application.

## CASE REPORT

A healthy 53-year-old right-handed female retiree complained of very reduced movement in her right elbow joint after being admitted to the orthopaedic ward. Three months prior, she suffered a fall onto her right outstretched hand. On that occasion, she presented to her local Emergency Department (ED) with pain, swelling and reduced range of motion. The emergency doctor diagnosed soft-tissue injury after reviewing an

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anterior-posterior projection only and discharged her with a sling and anti-inflammatory medication.

Three weeks after initial presentation, she visited a general practitioner who also diagnosed soft-tissue injury despite no improvement in the patient's range of motion at the right elbow joint. She presented a second time to the ED after a persistent loss of function and fixed flexion of the right elbow. The casualty officer then did two standard radiographic views (Fig. 1).

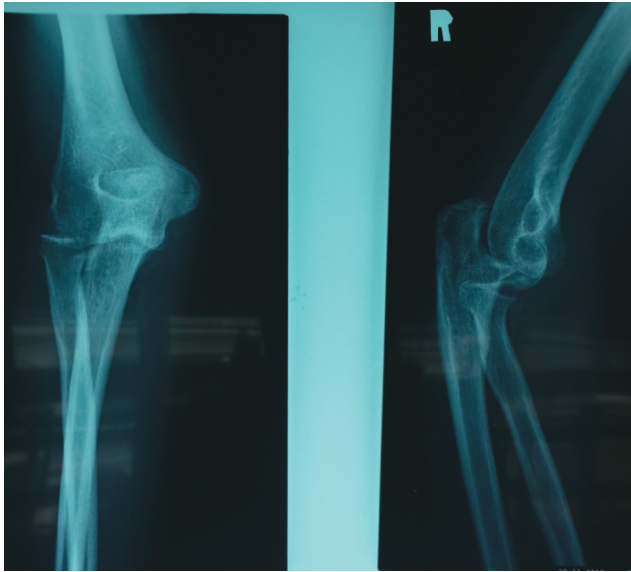


Fig. 1: Radiograph of anterior-posterior and lateral views in the right elbow.

This was 12 weeks after the initial insult. At this stage she was unable to move her right elbow and had severe limitation of her activities of daily living such as dressing, brushing her hair and using the bathroom/shower. A diagnosis of chronic right elbow posterior dislocation was made at this point.

The patient was then admitted to the female orthopaedic ward for definitive management. The patient's diagnosis was confirmed by the Senior Medical Officer on duty. She was assessed preoperatively, consented and scheduled for surgery for four days.

The operative procedure performed was open reduction and VY lengthening of the triceps muscle – Speed Technique. The patient was positioned prone with right arm on the padded post. A posterior longitudinal incision was made to access the elbow joint. Intra-operatively, she had ulna nerve decompression and distal humeral muscle attachments and collateral ligaments were released subperiosteally. Adhesiolysis of scarred tissue was also performed taking care, not to damage the articular cartilage. Reduction of ulna humeral joint was assisted by triceps VY plasty (Fig. 2).

She had two Kirschner wires placed in the ulna humeral and radiocapitellar joints with the elbow flexed at 90 degrees and splinted (Fig. 3).

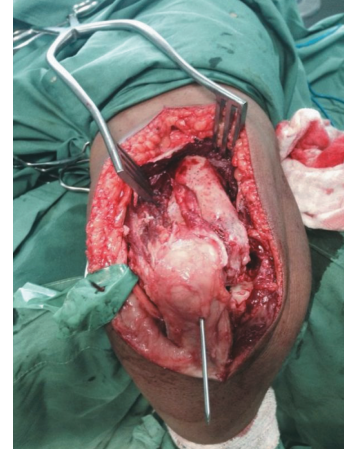


Fig. 2: Intra-operative view of reduced and K-wired ulna humeral joint.



Fig. 3: Postoperative radiograph of reduced elbow joint.

Postoperatively, the splint and K-wires were removed at three weeks in the out-patient clinic. Her joint was stable and she had minimum pain. Active range of motion exercises in flexion and extension were then commenced. She had an extension lag of 45° and a 45° range. At the six-week postoperative visit her extension lag was 30 degrees. Her painless arc range was now 60°. The patient was advised to continue night splinting for up to three months. She stated that her functionality was almost normal and was quite happy. Her outcome was assessed as good. Currently, she is scheduled for a six-month appointment and is still undergoing physiotherapy.

## DISCUSSION

Elbow dislocations are the second commonest type of dislocations in the adult (5). Acute dislocations are usually successfully treated by closed methods. A fall on the outstretched hand is the pathogenic mechanism associated with the injury, due to axial loading in supination and valgus force against the

elbow (6). Chronic dislocations are uncommon entities that require surgical management (1–4).

In this scenario, an elbow dislocation was unfortunately missed due to improper evaluation by the initial emergency doctor and general practitioner. Chronic elbow dislocation warranted surgical intervention due to scar tissue and disuse osteopaenia of the bone. Closed methods can result in fractures and increased morbidity.

The aim of open reduction is to achieve joint stability and improve function (1–4, 7, 8). The index patient had a neglected elbow dislocation for a three-month period; therefore open reduction was the favoured method of treatment (1, 9). Only a few papers describe the use of Speed's procedure as a treatment option (2, 3, 8).

The surgeon generally uses open reduction and VY lengthening of the triceps or Speed's technique. The only modification was K-wires were inserted in both ulna humeral and radio capetellar junctions.

We used clinical measures to assess a patient outcome such as stability, pain and arc of motion (1). More recent studies utilize patient reported outcome measures that have greater accuracy (8). Our patient had a good functional outcome despite the three-month delay in treatment.

In summary, chronic elbow dislocation and Speed's operative intervention present an infrequent management

scenario. Despite this, the appropriate application of this surgical technique resulted in a good functional outcome for our patient.

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