

## Reducing anterior shoulder dislocation by the Spaso technique

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Anterior shoulder dislocation is the commonest major joint dislocation seen in the Accident and Emergency departments. Spaso Miljesic has described a new technique for anterior shoulder dislocation in 1998. The technique is applied in reduction of anterior shoulder dislocations in the Accident and Emergency Department of Kwong Wah Hospital. We report the application of the Spaso technique on 2 patients (anterior shoulder dislocation with fracture greater tuberosity, anterior shoulder dislocation with fracture surgical neck of humerus) and discuss the potential advantages of using the Spaso technique. (*Hong Kong j.emerg.med.* 2001;8:96-100)

**Keywords:** Anterior shoulder dislocation, emergency medicine, Spaso technique

### Introduction

Emergency physicians commonly encounter anterior shoulder dislocation because it is the commonest major joint dislocation seen in the accident and emergency department. Traditional methods of reduction are technically difficult and often require two operators and heavy sedation of patient with intravenous opioid and benzodiazepine. A new method, the Spaso technique published by Spaso Miljesica, is a reliable, simple and safe method.

### The Spaso technique

The patient is placed in the supine position after provision of analgesia with or without sedation. The affected arm is gently lift vertically by grasping around the wrist. When the affected arm is in vertical position, vertical traction is applied. While maintaining the vertical traction, the shoulder is externally rotated. (Figure 1) A clunk is heard or felt as reduction occurs.

Not uncommonly, the patient may lift his shoulder off the bed when he feels pain during the traction. If this occurs, stop further movement of the limb but maintain traction. The pain will usually subside quickly and the patient relaxes. After a few minutes of gentle traction, reduction will usually occur. If difficulty is experienced, it may be helpful to use one hand to palpate the head of humerus and gently push on it to assist reduction, whilst maintaining traction with the other hand.<sup>1</sup>

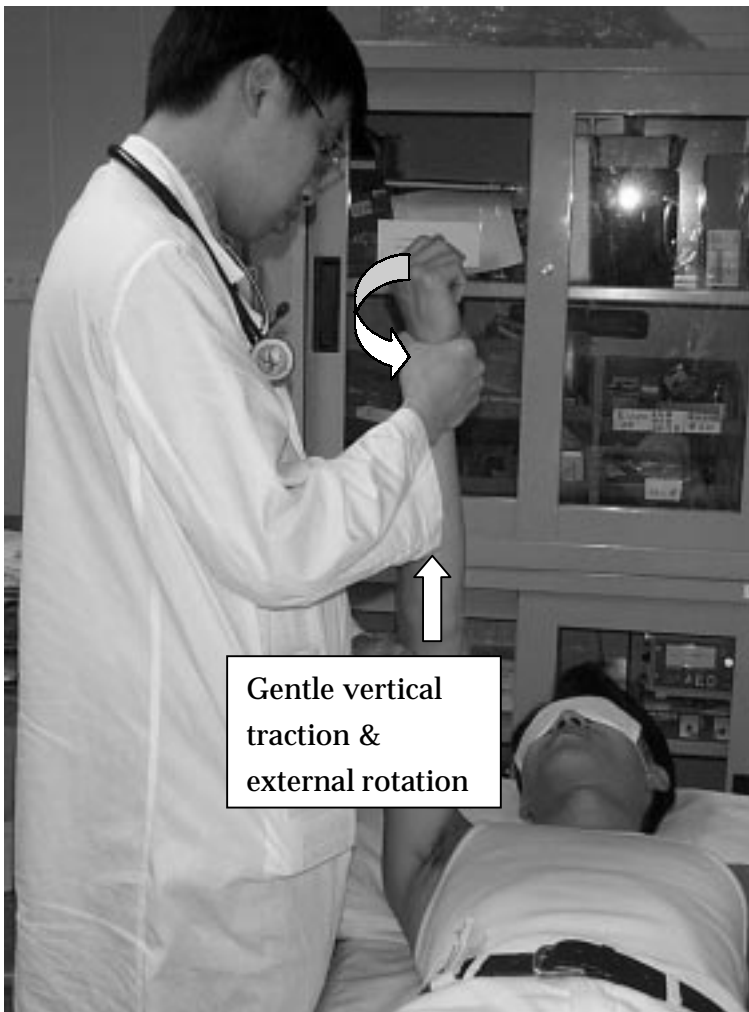
### Case 1: Subglenoid anterior shoulder dislocation with fracture of humeral greater tuberosity

A 52-year-old man attended our department after he had slipped and fallen onto the ground. His right shoulder was swollen after the injury. Physical examination showed that his right shoulder was dislocated. The axillary nerve and the radial pulse were intact. Radiography of his right shoulder confirmed subglenoid anterior shoulder dislocation with avulsion fracture of humeral greater tuberosity. (Figure 2)

After sedation with 5 mg of diazepam intravenously. The emergency resident failed to reduce the shoulder by the external rotation method. The attending emergency physician reduced the dislocation by the Spaso technique. The procedure was uneventful and the reduction was confirmed by radiography afterwards. (Figure 3)

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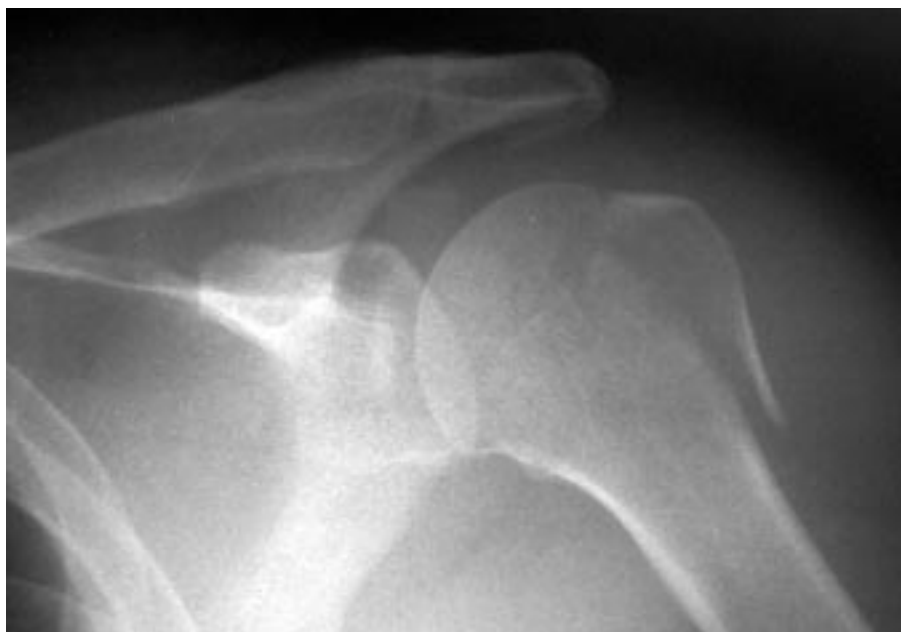
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**Figure 1.** Vertical traction and external rotation to the affected arm.



**Figure 2.** Anterior dislocation of shoulder with associated fracture of greater tuberosity.



**Figure 3.** X-ray confirmed the close reduction of the dislocated shoulder.

### **Case 2: Subglenoid anterior shoulder dislocation with humeral surgical neck fracture**

A 72-year-old lady presented herself to the AED after she fell off her chair onto the floor. She landed on her right shoulder. Her right shoulder was swollen after the injury. Physical examination revealed that her right shoulder was grossly deformed. The axillary nerve and the radial pulse were intact. Radiography of her right shoulder showed subglenoid dislocation with humeral neck fracture. (Figure 4)

After administration of 5 mg of midazolam intravenously the emergency medicine resident successfully reduced the dislocation by the Spaso technique. There was no complications noted after the close reduction. (Figure 5)

### **Discussion**

There are many different methods of reduction of anterior shoulder dislocation. Each technique has advantages and disadvantages. No existing technique can claim to be the best for every dislocation in every patient. Spaso Miljesic first published the Spaso technique in 1998. Although Spaso Miljesic

stated that this method has been widely used by all levels of staffs at Western Hospital Footscray for 15 years with excellent result, the success rate and the complications in his series were not reported.<sup>1</sup> Moreover, whether the Spaso technique was also useful in anterior shoulder dislocation with associated fracture of humerus was not discussed in his article.

The Spaso technique, which sounds like the reverse of the Stimson's method, has advantage over the other described methods for reduction of anterior shoulder dislocation.

The Kocher manoeuvre consists of 4 sequential manipulation. The complexity of the manoeuvre makes it difficult to perform. This manoeuvre has high success rate, but has been labelled as being dangerous because of its association with fracture of the surgical neck of humerus, vascular and neurological complications. It is no longer recommended as the primary method for reduction of anterior shoulder dislocation.<sup>2,6</sup> In contrast to the Kocher manoeuvre, the Spaso technique is more straightforward and easier to perform.

The traction-countertraction method requires two operators. One operator needs to apply traction force to the shoulder while the other operator needs



**Figure 4.** Anterior dislocation of shoulder with associated fracture surgical neck of humerus.



**Figure 5.** X-ray confirmed the close reduction of shoulder.

to apply countertraction by wrapping a sheet around the axilla. Excessive pressure may cause injury to brachial plexus in the axilla. Not uncommonly the physician feels fatigue after the procedure as the force required for reduction is huge.<sup>2</sup> The Spaso technique needs only one operator. It requires minimal force to maintain the vertical traction and avoids the need of countertraction on the axilla.

In Stimson's technique and the Scapular manipulation technique, the patient has to lie prone with hanging weight tied to the patient wrist for

the application of traction. This position can pose difficulties particularly if cervical spine injury is suspected in multiply traumatised patient.<sup>3-5</sup> In the Spaso technique, the reduction is performed with patient in supine position. The cervical spine can be protected in the usual way by the rigid neck collar and sandbags. The cervical spine and the airway will not be adversely jeopardised. The Spaso technique is a reasonable option for major traumatised patients with anterior shoulder dislocation in whom cervical spine injury is a possibility.

The Spaso technique, like the external rotation method, is an atraumatic method for reduction of anterior shoulder dislocation. However in the external rotation method, the reduction is performed with the arm at the side of the patient, where each of the shoulder muscle is running in a different direction thereby working against each other. In the Spaso technique, all of the shoulder muscles inserting into the humerus are directed upwards thereby assisting reduction to the anatomical position.<sup>1</sup>

The most common difficulty, which one encounters when using the Spaso technique, is that the patient may lift up his shoulder off the bed when he feels pain during the vertical traction. To overcome this difficulty, the operator should be very patient. The operator should stop any further movement of the limb but maintain the traction and allow time for the patient to relax. This step might take a few minutes. Sometimes, the patient may be too anxious, adequate relaxation would not be ensured by this step. In this situation, intravenous sedation might be indicated. Unfortunately Spaso Miljesic has not commented on the type and the degree of sedation needed before the operator should attempt the reduction.

Gleeson in his review article commented that intravenous benzodiazepine and opioid is currently the gold standard sedation and analgesia for reduction of anterior shoulder dislocation.<sup>2</sup> Needless to say, the patient, after intravenous benzodiazepine and opioid, required close monitoring and observation during and after the reduction in the accident and emergency department. In this series, intravenous benzodiazepine provided adequate sedation for the physician to manipulate the shoulder. No intravenous opioid was required. The patients were discharged promptly after a brief period of observation in the department. However, it might be too immature at this stage to comment that the Spaso technique can reduce every dislocation under sedation with intravenous benzodiazepine. This needs further exploration in future prospective studies.

In case 2, we successfully reduced a dislocation with humeral neck fracture by the Spaso technique. However dislocations associated with

a humeral neck fracture, whether displaced or not, should probably be reduced under general anesthesia with image intensification in order to diminish the risk of neurovascular damage.<sup>2</sup> We attempted the reduction in the department, because we believed that the Spaso technique required minimal force to reduce the dislocation, hence the risk of damaging the neurovascular structure and the risk of iatrogenic fracture was remote. Although the attempt gave a marvellous result in our patient, we did not recommend the routine use of the Spaso technique in reduction of dislocation with a humeral neck fracture without more evidence on its safety.

Although the Spaso technique is described as an effective and safe method in reduction of anterior shoulder dislocation, Spaso Miljesic had not commented on the success rate and the safety. A prospective study is needed to address this issue. Nevertheless, initial experience of the Spaso technique in the department is encouraging. The Spaso technique is one of the alternative methods for reduction of anterior shoulder dislocation in Accident and Emergency departments.

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