

# The Bent Ring Handle Spike: A Simple Technique in Optimizing Exposure in Shoulder Surgery

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## Abstract

The traditional use of the Trethowan bone lever when providing superior retraction in open shoulder surgeries can result in obstructed views, limited light exposure, and ergonomic strain on assistants. We describe a simple modification of the ring handle spike that addresses these issues, allowing for maximal exposure and improved ergonomics. The curvature of a bent ring handle spike provides superior retraction without obstructing the surgeon's view and keeps the assistant's hand away from the operative field. This modification of the bone lever offers a simple and effective solution to a common problem, enabling adequate visibility to perform shoulder surgery safely and ergonomically.

**Keywords:** surgical technique; shoulder surgery; surgical ergonomics; surgical instrumentation; retraction.

## Introduction

Obtaining optimal exposure when performing open shoulder operations is crucial for success. The anterior approach via the delto-pectoral interval is the workhorse approach to the shoulder [1]. A straight Trethowan bone lever is typically placed over the coracoid to provide retraction at the superior aspect of the wound. However, the shape of the instrument means that the assistant's hand obscures the field of view and limits the amount of light entering the wound (Figure 1). Furthermore, the awkward way in which the assistant has to reach over the shoulder may result in fatigue and possibly leaning against the patient's neck. We describe a novel modification of the straight bone lever that circumvents these issues.



**Figure 1:** Straight retractor obstructs lighting and the surgeon's view.

## Technique

The patient is placed in the beach chair position. The shoulder is prepped and draped in a standard fashion. An oblique incision is made over the anterior aspect of the shoulder from the coracoid to the deltoid insertion; this may vary depending on the procedure being undertaken. Once through the skin and subcutaneous fat, an obvious fat stripe overlies the cephalic vein which signifies the delto-pectoral interval. The interval is bluntly dissected, and the cephalic vein mobilized laterally (as the majority of its tributaries lie laterally, thus minimizing venous bleeding). A ratcheted retractor, such as the Kobel retractor, is then placed with its blades under the deltoid and the pectoralis major for side-to-side retraction.

The Trethowan bone lever, also known as the “ring handle spike”, is found on all standard orthopedic sets [2]. It is modified using a plate bending press to create a gentle 90-degree curve (Figure 2). The modified instrument is placed above the coracoid to provide superior retraction without obstructing the surgeon’s view.

The narrow tip of the bent ring handle spike fits snugly over the coracoid, providing optimum exposure of the surgical field, enabling light to enter the wound. The curved shape means that the instrument is more ergonomic, keeping the assistant’s hand away from the operative field (Figure 3). Furthermore, the assistant can rest their wrist on the patient’s shoulder and can manipulate the ring handle with a single finger preventing fatigue whilst maneuvering other instruments.



**Figure 2:** Left – modified bent ring handle spike; Right – standard Trethowan bone lever.



**Figure 3:** Left – straight retractor obstructs operative view; Right – bent ring handle spike enables optimal view of surgical field.

## Conclusion

To the authors’ knowledge, this simple technique of modifying a readily available instrument has not been published in the literature before. This modification of the bone lever enables maximal exposure allowing adequate visibility to perform shoulder surgery safely and ergonomically whilst increasing operative productivity. There are no known complications with this technique.

## Conflict of Interest

The authors declare no conflict of interest.

## Acknowledgements

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