

# Improved Safety With Cervical Injection Procedures Using Barium Sulfate Swallow

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## Citation

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## Abstract

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## INTRODUCTION

Patients requiring diagnostic and therapeutic neck injections risk perforation of major structures. Fluoroscopic identification of cervical landmarks and palpation of at-risk vessels can lessen adverse events. With the esophagus hard to localize, perforation may cause serious morbidity during some cervical procedures (e.g., discography). We present a safety-enhancing technique including barium sulfate swallow prior to needle placement that outlines the esophagus, enhancing orientation in multiple fluoroscopic projections.

## METHODS

The patient scheduled for a procedure that might encounter the esophagus receives a barium swallow prior to needle penetration. The patient is positioned under the fluoroscopy unit prior to skin preparation. A tablespoon of barium sulfate paste is swallowed with fluoroscopy activated. Mid-swallow is captured and either printed or placed on the reference screen. The procedure then proceeds offering the option of referencing the image corresponding to the fluoroscopic projection.

## RESULTS

Barium sulfate, well tolerated, clearly outlines the esophagus. Gastrographin is avoided due to risk of pneumonitis should aspiration occur. Barium swallow should directly precede fluoroscopic imagery. Routine use of barium sulfate paste has not been associated with any adverse events. Barium sulfate should not be used in patients with known sensitivity to barium.

**Figure 1**

Figure 1:



**Figure 2**

Figure 2:



**Figure 3**

Figure 3:



**Figure 5**

Figure 5:



**Figure 4**

Figure 4:



**Figure 6**

Figure 6:



**Figure 7**

Figure 7:



## **CONCLUSION**

Barium sulfate clearly outlines the esophagus, enhancing safety and assisting in fluoroscopic identification of landmarks in the neck. Patients tolerate this material well and barium swallow may be used routinely to decrease the risk of esophageal perforation. Enhanced confidence in documentation of needle placement is an advantage to the spinal injectionist.

## **References**

**Author Information**

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