

How a neurosurgeon eliminated dull, inefficient Kerrisons with a novel device that produces a sharp productive bite throughout the procedure

Introduction

The challenges of performing precise and complex procedures with dull Kerrisons are well known among neurosurgeons and orthopedic spine surgeons worldwide. This case study evaluated a new device that utilizes a novel approach to provide sharp, productive bites throughout the entire procedure, allowing the surgeon to complete the procedure safely, accurately, and efficiently.

Current Kerrison Challenges

Kerrisons are widely used in neurosurgery and orthopedic spine surgery including Discectomy, Cervical and Lumbar Laminectomy, and Fusion procedures. The most common surgeries are Anterior Cervical Discectomy and Fusion with Instrumentation and Lumbar Laminectomy with or without Discectomy and Fusion.

Kerrisons are designed to cut bone, ligament and cartilage in a controlled and exacting manner. After using the Kerrison to take an accurate bite of the intended tissue, the surgeon will then remove the Kerrison and tissue, exiting along the same straight path utilized to initiate the bite. Dr. James Wolter who works at the Kansas City Medical Center states, *"Dull instruments are the bane of surgery. The inability to progress with efficiency in an operation greatly frustrates surgeons. The temptation to deviate from acceptable technique with suboptimally sharp or dull instruments can result in twisting or tearing tissue rather than performing a true cut."*

This deviation from optimal technique can have untoward consequences such as an unintended durotomy or CSF leak. Other more serious complications include neurovascular damage. In a recent poll of neurosurgeons surveyed at the American Association of Neurological Surgeons Annual Scientific Meeting (AANS), 95% of respondents reported that dull Kerrisons increased the risk of dural tears.

Surgeons may start a procedure with sharp instruments that seem to become dull after multiple bites in a case. Most surgeons have the unfortunate experience of halting the surgery while the OR scrub nurse searches for freshly sharpened instruments. Dr. Wolter added, *"There is no guarantee that the instrument in the peel pack is going to be sharp or last any longer than the one that was used at the beginning of the case."*

Assessment of Current State

Facilities utilize several solutions to ensure a supply of sharp Kerrisons, including preventative maintenance programs that entail sharpness testing and routine sharpening. According to sterilization expert David Narance, RN, BSN, CRCST, *"Being proactive is critical. You want to catch a problem in the department (SPD), where it can be addressed properly, as opposed to having the surgeon discover it during the procedure."*

An effective preventative maintenance program must involve frequently sending Kerrisons out for sharpening and repair. However, this process can only be an effective solution when the facility maintains a sufficient number of Kerrisons to rotate through procedures and out for sharpening. Maintaining such an extensive inventory represents a substantial financial and tracking challenge.

An Innovative Solution

Advancements in surgical instruments have led to the development of a reusable Kerrison handle with a detachable, disposable tip. With this innovative solution, surgeons can simply replace a Kerrison tip whenever needed, enabling them to perform procedures with confidence knowing that they can rely on a sharp tip every time. This innovation virtually eliminates Kerrison-related issues such as ineffective bites, insufficient surgical progress, increased number of bites, increased risk for dural tears, poor surgical technique, surgical delays and increased length of surgery time. In the words of Dr. Wolter, *"The use of disposable tips has greatly improved efficiency in the operating room. The handles are standardized, and the scrub nurse can replace the tips in a matter of seconds allowing the case to proceed without delays thereby eliminating physician fatigue and frustration. Although there are no studies directly examining better patient outcomes, I am certain that the disposable sharp tips lead to better patient outcomes."*

Neurosurgeon survey results of Kerrison performance conducted at American Association of Neurological Surgeons Annual Scientific Meeting (AANS):

95%

Dull Kerrisons increase the risk of dural tears

100%

Dull Kerrisons increase procedure length

100%

A Kerrison with a sharp tip provides a more productive bite

Clinical Advantages

Surgeons are achieving optimal results with the clinical advantages afforded by Kerrisons that have sharp tips every time. Three of the most compelling clinical advantages are the following:

1. **Progress occurs with every bite**
2. **Proper technique for the intended surgery is possible**
3. **Greater clinical decompression efficiency is created**

Summary

Traditional Kerrisons perform well until the tip becomes dull, at which point clinical issues arise that increase the risk to the patient and may lead to suboptimal surgical outcomes. Rather than cycle a large inventory of Kerrisons through procedures and sharpening, utilizing the Symmetry Sharp Kerrison® eliminates the risks presented by a dull Kerrison and avoids the need to carry a large inventory of Kerrisons. Using a detachable, disposable sharp tip Kerrison allows the surgeon to get the job done safely and correctly, leading to optimal patient outcomes, decreased OR time and less risk to the patient.

Dr. James A Wolter had disclosed that he has no financial interest or agreements with Symmetry Surgical® or any other medical company. Although Dr. Wolter is employed by the Kansas City VA, the VA does not endorse any products.

References Available Upon Request.

1 Williamson, Julie "Proactive preventive maintenance can curb costly device repairs," <https://cdn.hpnonline.com/inside/2012-04/1204-CS-Maintenance.html>," Accessed May 29, 2019.

2 Kerrison Survey, American Association of Neurological Surgeons, San Diego, CA 17 April 2019.



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