**A Quick Guide to Endoscopic Tattooing for GI Nurses**

**Introduction**
Gastroenterology and endoscopy nurses play a large role in the safety and efficiency of GI Endoscopy suites. This includes helping to educate staff on the importance of certain procedures, including endoscopic tattooing. Since almost all GI Endoscopy nurses have had to hand their gastroenterologist or surgeon a syringe full of ink for lesion marking, below is a quick guide to help answer some common questions.

**Why tattoo?**
Endoscopic tattooing or marking of lesions plays a very important role in patient care. When a gastroenterologist or surgeon sees a lesion in the GI tract, it is often unknown whether or not it is cancerous until a biopsy result is obtained. Therefore the lesion location is tattooed so that it can later be found on subsequent screening or for surgical resection. Even if a lesion looks like it will be easy to find later on, the anatomy of the bowel can contribute to imprecise measurements for the procedure reports, so it is often recommended that all suspicious lesions be tattooed.

**Who benefits?**
Patients, surgeons and gastroenterologists all benefit from having colorectal lesions tattooed. By localizing lesions with very clear, permanent tattoo marks, colon resection surgery and follow-up surveillance is much easier. When a surgeon cannot locate a lesion during surgery, the potential risks include:
- Longer surgical times while the surgeon attempts to locate the lesions
- Additional surgeries because the surgeon must go back to find the lesions
- The need for the surgeon to change from a laparoscopic to an open procedure
- The need for the surgeon to do an interoperative colonoscopy
- **MOST IMPORTANT: Wrong site surgery.**
  The potential for the surgeon to remove the wrong section of bowel.¹ ²

**What types of ink are available?**
There are several types of ink available for use in endoscopic tattooing, including india ink, Spot™ (purified, very fine carbon particles), methylene blue, indigo carmine, and indocyanine green (ICG). Many nurses and physicians are most familiar with india ink and Spot. According to the American Society for Gastrointestinal Endoscopy (ASGE), the other inks are less useful with respect to safety, efficacy, and ease of use.²
Endoscopic tattooing has been used since the 1970s for marking lesions along the GI tract. India ink was the most common type of ink for many years. It is composed of carbon particles and other substances including ethylene glycol, phenol, shellac, and animal products (i.e., gelatin). Different substances found in india ink have been known to cause inflammatory reactions. Because india ink is inherently unstable, a clinician (often the GI Endoscopy Nurse) must dilute the ink with saline and sterilize it using an autoclave or passing it through a bacteriostatic Millipore filter. The ink is then drawn up into a syringe for the gastroenterologist or surgeon to use.

The Spot endoscopic marker was introduced in 2000 as a sterile, pre-mixed, pre-loaded, biocompatible suspension of purified, very fine carbon particles. It is the first and only non-india ink based FDA cleared tattoo product. It is packaged sterile in a 5cc syringe, and is ready for use after shaking.

What technique should be used?

While several techniques are suggested in the literature for tattooing the GI tract, the four quadrant technique is often recommended, as it optimizes intraoperative visualization. Remember to check the labels and inserts of the ink you use for indications, contraindications, and instructions for use.

1. The injection needle should be inserted .5-1cm from the lesion at an angle to the colon wall so that the tip of the needle is beneath the mucosa.
2. The needle should then be pulled back to the submucosa level.
   – Tenting the tissue is helpful to verify submucosa depth.
3. A small amount of ink should then be injected to verify placement.
4. If placement is correct, injection of .5-.75ml of the ink is generally used.

Some endoscopists use a two-step approach by first injecting saline to create a bleb, and then using the same needle to inject the ink. This technique may help reduce spillage into the peritoneum which can create broad tissue staining.

CONCLUSION:

While tattooing lesions along the GI tract is the job of the endoscopist, the GI Endoscopy Nurse generally oversees the retrieval of the ink and syringe. This quick guide outlines the importance of tattooing lesions, the different inks available, and how the ink is used in the GI lab.

To learn more about the Spot™ Endoscopic Marker, please visit www.gi-supply.com/spot

References


The information contained in this article is not meant as medical advice to healthcare providers or patients.