

## Ask your Surgeon: Appearance of Endoloops on Postoperative Imaging after Pediatric Appendectomy

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**Received Date** : July 24, 2022  
**Accepted Date** : Aug 05, 2022  
**Published Date** : Aug 24, 2022  
**Archived** : [www.jcmimagescasereports.org](http://www.jcmimagescasereports.org)  
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### Abstract

Laparoscopic appendectomies in children require closure of the appendiceal stump. Ethicon Endoloop ligatures can be used for this purpose but may be visualized on postoperative imaging which can create confusion for radiologists who may be concerned for a retained foreign body. Close communication between surgeons and radiologists about such findings is recommended.

**Keywords:** Endoloops; postoperative imaging; pediatric appendectomy.

### Introduction

Pediatric appendicitis is a common condition which affects 70,000 children in the US each year with a lifetime risk of nine percent for males and seven percent for females [1]. Although nonoperative management with antibiotics has become increasingly popular as a therapeutic tool to cure appendicitis, appendectomy remains the mainstay treatment option [2]. Laparoscopic appendectomy requires closure of the appendiceal stump in order to prevent leak of fecal matter from the cecum. Stump closure can be achieved via multiple techniques including stapling and suturing [3]. For children, appendiceal stumps also can be sealed using Ethicon Endoloop ligatures, which are pre-tied sutures formed in a ligature loop with a knot that can be cinched down via a plastic tube to maintain integrity of the gastrointestinal tract and to prevent spillage of stool from the cecum after appendectomy.

The type of Endoloop used in pediatric appendectomies is typically 0 PDS II with two Endoloops left behind on the appendiceal stump. PDS (polydioxanone) is an absorbable suture which absorbs completely in approximately six to seven months [4]. Here we describe the case of a 9 yo girl who underwent laparoscopic appendectomy with appendiceal stump closure with Endoloops as treatment of her perforated appendicitis.

### Case Description

The patient presented to the Emergency Department of an urban hospital with two days of abdominal pain, vomiting, and diarrhea. An ultrasound confirmed the diagnosis of perforated appendicitis and the patient was taken to the operating room where a laparoscopic appendectomy and abdominal washout was performed. As noted above, two 0 PDS Endoloops were used to close the appendiceal stump (**Figure 1**). The appendix was placed in a bag and removed via the umbilical incision. The patient remained in the hospital for five days of iv antibiotics and was discharged with oral antibiotics to complete a ten-day course. She returned to the Emergency Room with nausea and vomiting two days after discharged. An ultrasound was performed at her second visit to assess for an intra-peritoneal abscess. Although no fluid collection was identified, the radiologist did note a linear foreign body adjacent to the cecum (**Figure 2**). This linear density was not present on a CT scan that was subsequently performed. Upon consultation with the operating surgeon, the linear density noted on ultrasound was determined to be the Endoloop used to seal the appendiceal stump. The patient was admitted to the hospital overnight and given intravenous fluids. Her symptoms improved and she was discharged again the next day.

**Citation:** Meredith Lahey NP, Laura Diaz NP, Claudia Mueller. Ask your Surgeon: Appearance of Endoloops on Postoperative Imaging after Pediatric Appendectomy. *J Clin Med Img Case Rep.* 2022; 2(4): 1224.



### Conclusion

Laparoscopic appendectomy requires closure of the appendiceal stump to prevent spillage of fecal content into the peritoneal cavity. In pediatric patients, PDS Endoloops are easy and cost-effective closure devices which will dissolve over time and therefore leave no permanent foreign material in children's abdomens. While not radio-opaque, Endoloops can be visualized on ultrasound and can give the appearance of a retained foreign body on post-operative ultrasonography. It is important for the radiology team to be in close communication with the operating surgeon whenever post-operative imaging is required in order to avoid mischaracterization of viewed internal items as retained foreign bodies.

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