

 CORRESPONDENCE

## Superficial Surgical Site Infection Following the Use of Intracutaneous Sutures Versus Staples

A Randomized Single-Center Trial in an Elective Gastrointestinal Surgery Setting

by Dr. med. Elisabeth Maurer, Alexander Reuss, Dr. med. Katja Maschuw, Behnaz Aminossadati, Dr. med. Thomas Neubert, Carmen Schade-Brittinger, and Prof. Dr. med. Detlef K. Bartsch in issue 21/2019

### Staples Can Have Advantages

As correctly pointed out by the authors of the article, the majority of surgical site infections after surgical procedures is caused by the patient's own flora (1). Almost two third of all pathogens causing surgical site infections in a gastrointestinal surgery setting are *Escherichia coli* or enterococci (2). The primary reservoir for pathogens associated with surgical site infections occurring after abdominal surgery is the gastrointestinal tract, although intestinal bacteria can be part of the transient skin flora. Apparently, translocation of pathogens into the surgical wound does not typically arise from the skin. Therefore, the hypothetical advantage of intracutaneous sutures (quote: 'With regard to the patient's own flora as the main source of surgical site infections, tight skin closure without injury to dermal structures might possibly help prevent surgical site infections.') indicated by the authors is of little relevance. Consequently, their study found no difference between the two techniques with regard to the primary endpoint of their study and A2 and A3 wound infections (3).

It should also be noted that staples—essentially interrupted stitches—have the advantage, especially if used for the closure of long incisional wounds, that individual staples can be removed to treat fluid retention and local (early) infections (within short sections of the wound) without creating major dehiscence. An increased number of cases of wound dehiscence after removal of the staples, as reported by the authors, has to be taken into account, especially in the elective setting. However, with regard to their significance for the further healing process, the question arises as to the extent of wound dehiscence. To avoid wound dehiscence, the technique used to place staples should ensure meticulous approximation of the wound edges without inversion, as well as adequate distances between the staples, to the wound edges and to the angle of the wound. The authors demonstrated with their study that intracutaneous sutures also play a role in an elective gastrointestinal surgery setting.

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### References

1. Maurer E, Reuss A, Maschuw K, et al.: Superficial surgical site infection following the use of intracutaneous sutures versus staples—a randomized single-center trial in an elective gastrointestinal surgery setting. *Dtsch Arztebl Int* 2019; 116: 365–71.

2. Kommission für Krankenhaushygiene und Infektionsprävention (KRINKO): Prävention postoperativer Wundinfektionen. Empfehlung der Kommission für Krankenhaushygiene und Infektionsprävention (KRINKO) beim Robert Koch-Institut. *Bundesgesundheitsbl* 2018; 61:448–73.
3. Cruse PE, Foord R: A five-year prospective study of 23,649 surgical wounds. *Arch Surg* 1973; 107: 206–10.

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### Conflict of interest

The author declares no conflict of interest.

### In Reply:

We would like to thank Dr. Lampl for his insightful letter to the editor. With regard to the spectrum of pathogens encountered in an elective gastrointestinal surgery setting, it can be assumed that a high proportion of surgical site infections is indeed caused by intestinal bacteria. However, whether superficial A1 surgical site infections are caused by the translocation of pathogens from the surgical field to the wound remains speculative. It appears unlikely that an infection caused by intestinal pathogens would only affect the skin, without comprising fascia or abdominal wall. In gastrointestinal surgery, deep surgical site infections (A2/3), involving organs and body cavities, are typically caused by intestinal pathogens. The reported involvement of *Escherichia coli* and enterococci is based on all surgical site infections, not solely on superficial grade A1 wound infections (1). In addition, it was found that a relevant proportion of surgical site infections were caused by *Staphylococcus aureus* and coagulase-negative staphylococci (2), supporting the hypothesis that the technique of intracutaneous suture (tight skin closure, no injury to dermal structures [3]) can help to lower grade A1 surgical site infection rate.

We agree that the use of staples permits partial opening of the wound which is difficult to achieve if the incision is closed with running intracutaneous sutures. Wound dehiscence following removal of the staples (i.e. 10 days after surgery) requires various types of treatment, including secondary suture, approximation using wound closure strips and open wound treatment. Here, the comparatively low impact of wound dehiscence on the patient needs to be carefully balanced against the distress associated with these

procedures and subsequent outpatient follow-up appointments. It is also a very valid point to highlight the significance of applying proper stapling techniques to promote uncomplicated wound healing.

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**References**

1. Kommission für Krankenhaushygiene und Infektionsprävention (KRINKO): Prävention postoperativer Wundinfektionen. Empfehlung der Kommission für Krankenhaushygiene und Infektionsprävention (KRINKO) beim Robert Koch-Institut. Bundesgesundheitsbl 2018; 61: 448–73.
2. Cruse PE, Foord R: A five-year prospective study of 23,649 surgical wounds. Arch Surg 1973; 107: 206–10.
3. Mangram AJ, Horan TC, Pearson ML, Silver LC, Jarvis WR: The hospital infection control practices advisory committee: guideline for

prevention of surgical site infection. Am J Infect Contro 1999; 27: 97–132.

4. Maurer E, Reuss A, Maschuw K, et al.: Superficial surgical site infection following the use of intracutaneous sutures versus staples—a randomized single-center trial in an elective gastrointestinal surgery setting. Dtsch Arztebl Int 2019; 116: 365–71.

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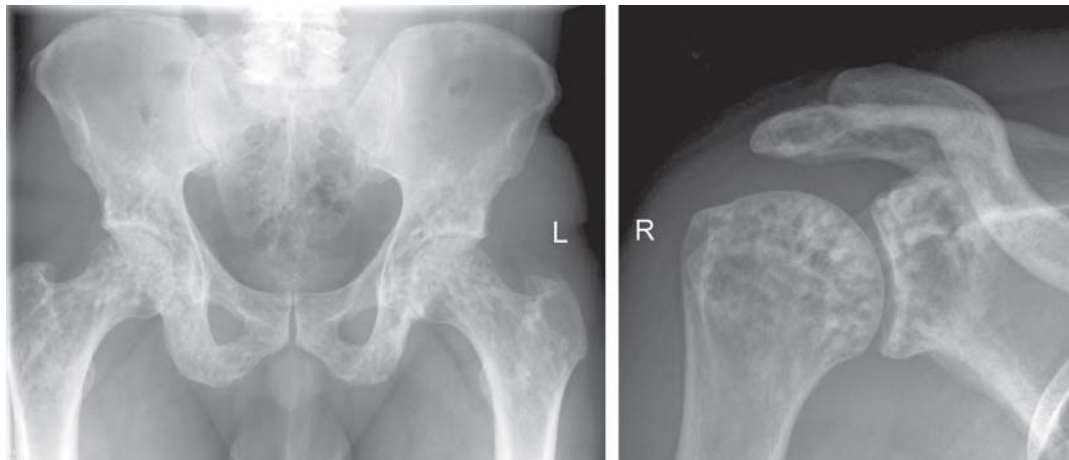
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**CLINICAL SNAPSHOT**

**Osteopoikilosis—Incidental Finding in the Emergency Department**



A 47-year-old man presented to the emergency room after falling down stairs. He reported pain in the right shoulder and right iliac crest. Biplanar radiographs were obtained and bony injury was excluded. Disseminated sclerotic foci were found on the radiographic images. There was no known underlying malignancy.

Osteopoikilosis (osteopathia condensans disseminata) is a benign autosomal dominant congenital or sporadic form of sclerosing bony dysplasia. The cause of osteopoikilosis is disordered remodeling of lamellar bone into cancellous bone, resulting from a loss-of-function mutation in the *LEMD3* gene. Its prevalence is estimated at 1/50 000. The majority of patients are asymptomatic, so osteopoikilosis is usually an incidental finding. In exceptional cases symptoms such as joint pain or swelling may occur. There is no weakening of the bone. The osteopoikilotic changes usually occur in isolation, but may occasionally be accompanied by other clinical malformations, up to the point of defined syndromes. If radiographs show the typical findings, confirmatory biopsy is generally unnecessary.

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