



Cochrane
Library

Cochrane Database of Systematic Reviews

Absorbable versus non-absorbable sutures for skin closure after carpal tunnel decompression surgery (Review)

Wade RG, Wormald JCR, Figus A

Wade RG, Wormald JCR, Figus A.

Absorbable versus non-absorbable sutures for skin closure after carpal tunnel decompression surgery.

Cochrane Database of Systematic Reviews 2018, Issue 2. Art. No.: CD011757.

DOI: 10.1002/14651858.CD011757.pub2.

www.cochranelibrary.com

Absorbable versus non-absorbable sutures for skin closure after carpal tunnel decompression surgery

Ryckie G Wade^{1,2}, Justin CR Wormald³, Andrea Figus^{4,5}

¹Department of Plastic and Reconstructive Surgery, Leeds Teaching Hospitals NHS Trust, Leeds, UK. ²Faculty of Medicine and Health, University of Leeds, Leeds, UK. ³Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences (NDORMS), University of Oxford, Oxford, UK. ⁴University of Cagliari, Cagliari, Italy. ⁵Department of Surgical Sciences, Plastic Surgery and Microsurgery Section, Cagliari, Italy

Contact address: Ryckie G Wade, Department of Plastic and Reconstructive Surgery, Leeds Teaching Hospitals NHS Trust, Leeds, West Yorkshire, LS1 3EX, UK. ryckiewade@gmail.com.

Editorial group: Cochrane Neuromuscular Group.

Publication status and date: New, published in Issue 2, 2018.

Citation: Wade RG, Wormald JCR, Figus A. Absorbable versus non-absorbable sutures for skin closure after carpal tunnel decompression surgery. *Cochrane Database of Systematic Reviews* 2018, Issue 2. Art. No.: CD011757. DOI: 10.1002/14651858.CD011757.pub2.

Copyright © 2018 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

ABSTRACT

Background

Carpal tunnel syndrome is a common problem and surgical decompression of the carpal tunnel is the most effective treatment. After surgical decompression, the palmar skin may be closed using either absorbable or non-absorbable sutures. To date, there is conflicting evidence regarding the ideal suture material and this formed the rationale for our review.

Objectives

To assess the effects of absorbable versus non-absorbable sutures for skin closure after elective carpal tunnel decompression surgery in adults on postoperative pain, hand function, scar satisfaction, wound inflammation and adverse events.

Search methods

We searched the following databases on 30 October 2017: the Cochrane Neuromuscular Specialised Register, CENTRAL, MEDLINE, and Embase. We searched two clinical trials registries on 30 October 2017.

Selection criteria

We considered all randomised or quasi-randomised controlled trials comparing absorbable and non-absorbable sutures for skin closure after any form of carpal tunnel decompression surgery in adults.

Data collection and analysis

The unit of analysis was the hand rather than the patient. We performed meta-analysis of direct comparisons to generate standardised mean differences (SMDs) with 95% confidence intervals (CIs) in pain scores and risk ratios (RRs) with 95% CIs for dichotomous outcomes, such as wound inflammation. The primary outcome was postoperative pain. Secondary outcomes included hand function, scar satisfaction, scar inflammation and adverse events (complications). We assessed the quality of evidence for key outcomes using GRADE.

Main results

We included five randomised trials (255 participants). The trials were all European (UK, Republic of Ireland, Denmark and the Netherlands). Where quoted, the mean age of participants was between 48 and 53 years. The trials measured outcomes between one and 12 weeks postoperatively.

Meta-analysis of postoperative pain scores for absorbable versus non-absorbable sutures at 10 days following open carpal tunnel decompression (OCTD) produced a SMD of 0.03 (95% CI -0.43 to 0.48; 3 studies, number of participants (N) = 137; $I^2 = 43\%$); the SMD suggests little or no difference, but with a high degree of uncertainty because of very low-quality evidence. At 10 days following endoscopic carpal tunnel decompression (ECTD), the SMD for postoperative pain with use of absorbable versus non-absorbable sutures was -0.81 (95% CI -1.36 to -0.25; 1 study; N = 54); although the SMD is consistent with a large effect, the very low-quality evidence means the results are very uncertain. Only the OCTD studies provided pain data at 6 weeks, when the SMD was 0.06 (95% CI -0.72 to 0.84; 4 studies; N = 175; $I^2 = 84\%$), which indicates little or no evidence of difference, but with a high degree of uncertainty (very low-quality evidence). The RR for wound inflammation using absorbable versus non-absorbable sutures after OCTD was 2.28 (95% CI 0.24 to 21.91; N = 95; $I^2 = 90\%$) and after ECTD 0.93 (95% CI 0.06 to 14.09; 1 study, N = 54). Any difference in effect on wound inflammation is uncertain because the quality of evidence is very low. One study reported postoperative hand function but found no evidence of a difference between suture types at two weeks (mean difference (MD) -0.10, 95% CI -0.53 to 0.33, N = 36), with similar findings at six and 12 weeks. Only the ECTD trial reported scar satisfaction, with 25 out of 28 people reporting a 'nice' result in the absorbable-suture group, versus 18 out of 26 in the group who received non-absorbable sutures (RR 1.29, 95% CI 0.97 to 1.72, N = 54). These findings are also very uncertain as we judged the quality of the evidence to be very low. All studies were at high risk of bias for most domains. No trials reported adverse events.

Authors' conclusions

It is uncertain whether absorbable sutures confer better, worse or equivalent outcomes compared to non-absorbable sutures following carpal tunnel decompression, because the quality of evidence is very low. Use of absorbable suture eliminates the need for suture removal, which could confer considerable savings to patients and healthcare providers alike. We need rigorously-performed, non-inferiority randomised trials with economic analyses to inform choice of suture.

PLAIN LANGUAGE SUMMARY

Absorbable versus non-absorbable stitches for closing the wound after carpal tunnel surgery

What is the aim of this review?

The aim of this Cochrane review was to compare absorbable and non-absorbable material for stitching the wound after carpal tunnel surgery. We collected and analysed information on this question and found five relevant studies.

Key messages

We do not know whether absorbable or non-absorbable stitches are better for closing the wound after surgery for carpal tunnel syndrome (CTS). The studies we found only provide very low-quality evidence, which does not allow a conclusion to be made.

Only one study reported on hand function and scar satisfaction after surgery, and none provided data on side effects. We have no evidence of sufficient quality to assist choice of suture following surgery for CTS. However, absorbable stitches do not require removal and so time and cost savings could be made.

What was studied in the review?

CTS is a common condition that may affect one or both hands, with symptoms such as tingling, numbness, and weakness of the thumb and fingers. These symptoms are usually caused by pressure on the median nerve as it passes from the arm across the wrist into the palm. The nerve goes through a tunnel at the wrist made up of wrist bones and a band of thick tissue. If the size of this tunnel is too small for any reason, pressure on the nerve can lead to problems using the hand, and other symptoms of CTS.

The treatment of CTS is divided into non-surgical treatments (splints and steroid injections) and surgical treatments. Surgery for CTS is the most common non-urgent hand operation. This minor surgery is usually performed under local anaesthetic. In open carpal tunnel surgery the cut is large enough for the surgeon to see the carpal tunnel directly. In endoscopic carpal tunnel surgery, the surgeon makes two small cuts in the wrist, one for surgical instruments and the other for a small camera. Typically, the skin is closed with

stitches, which are either absorbed naturally by the body (absorbable) or have to be removed (non-absorbable). Absorbable stitches are convenient, but some people think they might worsen scarring and inflammation. Non-absorbable stitches are believed to cause less inflammation and a better scar, but their removal involves greater costs and inconvenience for the patient and healthcare system.

We wanted to assess the evidence to find out whether there was a difference between these two types of suture when used for CTS surgery.

What are the main results of the review?

Following a thorough search, we found five studies (with a total of 255 participants) that compared these stitches. All the studies had some problems in design or the way they were performed. The participants in four studies had open carpal tunnel surgery and in one study they had endoscopic carpal tunnel surgery.

Due to the very-low quality of the evidence contributing to our analyses, it is uncertain whether there are differences between absorbable and non-absorbable stitches for pain at 10 days or 6 weeks after surgery, hand function, scar satisfaction or wound inflammation. The studies did not report side effects.

How up to date is this review?

The review authors searched for studies that were available up to 30 October 2017.