

REVIEW

Disposable circumcision suture devices versus Shang ring circumcision for management of redundant prepuce or phimosis: A systematic review and meta-analysis



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KEYWORDS

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Abstract

Objective: To evaluate the clinic efficacy and safety of the disposable circumcision suture device (DCSD) and Shang ring circumcision (SRC) in the treatment of redundant prepuce or phimosis with a meta-analysis.

Material and methods: Electronic databases including PubMed, Embase, Wan Fang, VIP, CNKI and CBM database were researched from inception to August 30, 2016 for relevant RCTs and prospective studies, the reference lists of the included studies were also searched manually. The risk ratios (RR) or mean difference (MD) with 95% confidence intervals (CI) as the effect sizes were calculated by the Revman 5.3 and stata12.0 software.

Results: Twelve RCTs or prospective studies were included with 3345 patients among which 1661 cases received DCSD treatment and 1684 SRC. Compared to the Shang ring circumcision treatment, the disposable circumcision suture device provided a significantly shorter operation time [MD = -0.94, 95%CI (-1.76, -0.12), $P=0.02$], lower pain scores [MD = -1.89, 95%CI (-2.72, -1.07), $P<0.001$], no stitch removal pain, better postoperative penile appearance [RR = 1.10, 95%CI (1.04, 1.17), $P=0.001$], fewer complications [RR = 0.42, 95%CI (0.32, 0.56), $P<0.001$] and shorter wound healing time [MD = -8.92, 95%CI (-10.79, -7.05), $P<0.001$]. Meanwhile, there is more intraoperative blood loss [MD = 0.12, 95%CI (0.02, 0.22), $P=0.02$], and more treatment cost [MD = 877.57, 95%CI (737.94, 1017.20); $P<0.001$].

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PALABRAS CLAVE

Prepucio redundante;
Fimosis;
Meta-análisis;
Dispositivos de sutura
de circuncisión
desechables

Conclusions: Based on the results of our meta-analysis, DCSD is more effective and safer than SRC. Thus, it has the advantages of shorter operation time, lower pain scores, better postoperative penile appearance, fewer complication and shorter wound healing time. However, the results need additional high-quality multicenter RCTs to evaluate in the future.

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Dispositivos de sutura de circuncisión desechables y circuncisión del anillo Shang para el manejo del prepucio redundante o fimosis: una revisión sistemática y metaanálisis

Resumen

Objetivo: Evaluar la eficacia clínica y la seguridad en el tratamiento del prepucio redundante o fimosis con los dispositivos de sutura de circuncisión desechable (DCSD) y la circuncisión del anillo Shang (SRC).

Material y métodos: Se investigaron las bases de datos en línea, como PubMed, Embase, Wan Fang, VIP, CNKI y CBM desde el inicio hasta el 30 de agosto de 2016 para ensayos controlados aleatorios y estudios prospectivos relevantes, así como las listas de referencias de los estudios incluidos. Las relaciones de riesgo (RR) o la diferencia de medias (MD) con intervalos de confianza (IC) del 95% (IC 95%) así como los tamaños del efecto se calcularon con el software Revman 5.3 y stata 12.0.

Resultados: Se incluyeron 12 ECA o estudios prospectivos con 3.345 pacientes, de los cuales 1.661 fueron tratados con el DCSD y 1.684 con SRC. En comparación con el tratamiento con SRC, el DCSD proporcionó un tiempo de operación más corto (MD = -0,94; IC 95% [-1,76, -0,12], $p = 0,02$), sin dolor al extraer las puntadas (MD = -1,89; IC 95% [-2,72, -1,07], $p < 0,001$), y mejor recuperación después de la cirugía (RR = 1,10; IC 95% [1,04; 1,17], $p = 0,001$), menos complicaciones (RR = 0,42; IC 95% [0,32; 0,56], $p < 0,001$) y menor tiempo de cicatrización (MD = -8,92; IC 95% [-10,79, -7,05], $p < 0,001$). Mientras tanto, hay más pérdidas sanguíneas intraoperatorias (MD = 0,12; IC 95% [0,02; 0,22]; $p = 0,02$) y más costo de tratamiento (MD = 877,57; IC 95% [737,94; 1.017.20]; $p < 0,001$).

Conclusión: El DCSD es más eficaz y más seguro que SRC según el resultado del metaanálisis. Por lo tanto, tiene las ventajas de un menor tiempo de operación, menores puntuaciones de dolor, mejor aspecto postoperatorio del pene, menor complicación y menor tiempo de cicatrización de la herida. Se necesitan ECA multicéntricos adicionales de mejor calidad en la evaluación debido a los límites de esta revisión sistemática.

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Introduction

Male circumcision (MC), dated back to more than 5000 years ago, represented an effective treatment for the penile malformations, has been performed with a prevalence of approximately 70% in the USA and 38.7% worldwide.¹⁻³ There are large volumes of published trials describing the benefits of MC, including easier urination, improved penile topical hygiene, increased sexual pleasure and prevented urinary tract infections.^{4,5} Additionally, it has been demonstrated that it could reduce sexually transmitted diseases (STDs) passed by their female partners, penile cancer and cervical cancer associated with harboring human papilloma virus.^{6,7}

There have been multiple methods of MC, such as sleeve circumcision, dorsal slit (DS), DCSD, SRC and the suture less circumcision using tissue glue. The most common forms

are the conventional circumcision (CC) including World Health Organization (WHO) recommending forceps guided, dorsal slit, and sleeve resection methods.⁸ In these traditional forms, they have the disadvantages of adverse complications, inevitably suturing the incision, and cumbersome and time-consuming of the surgical procedure.^{8,9} Moreover, those methods require superior surgical technique to avoid the imperfect postoperative appearance, such as irregular hematoma.^{10,11} In contrast, DCSD and SRC, as two novel types of disposable circumcision devices, have substantial advantages which could simplify surgical process, shorten operative time, reduce adverse events, achieve a satisfying appearance, and seem to be more effective and safer than CC.^{12,13} However, it is still controversial which MC practices are more clinically acceptable between DCSD and SRC.

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