

Cadaveric fascia lata allograft in treating stress urinary incontinence. Systematic review

El aloinjerto de fascia lata cadavérica en el tratamiento de la incontinencia urinaria de esfuerzo. Revisión sistemática

Wilmer Rivero-Rodriguez¹, Jorge Gómez¹, Antonio Gómez-Serrano², Laura D. Muñoz-Torres³, Natalia V. Ardila-Velasco⁴, Lina Pineda-Berrio⁵, Sandra Sanabria-Barrera⁵, Angie Y. Serrano-García⁶, and Lyda Z. Rojas^{7*}

¹Department of Urology and Nephrology, Hospital Internacional de Colombia, Piedecuesta, Santander; ²Department of Gynecology, Hospital Internacional de Colombia, Piedecuesta; ³Clinical Research Group, Pedagogical and Technological University of Colombia, Tunja, Boyacá; ⁴School of Medicine and Health Sciences, University of Rosario, Bogotá, Cundinamarca; ⁵Department of Innovation and Technological Development, Fundación Cardiovascular de Colombia, Santander; ⁶Research Center, Fundación Cardiovascular de Colombia, Floridablanca, Santander; ⁷Research Group and Development of Nursing Knowledge (GIDCEN-FCV), Research Center, Fundación Cardiovascular de Colombia, Floridablanca, Santander. Colombia

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Abstract

Stress urinary incontinence (SUI) is a common issue in women, posing health and economic challenges. Among surgical options, the use of cadaveric fascia lata (CFL) has been proposed, although its characterization and efficacy remain relatively unexplored. This review synthesized evidence on CFL compared to other grafts for treating SUI, based on a systematic review in Medline-PubMed and EMBASE (up to October 2023). Studies of any design and language addressing CFL use in SUI were included, selected, and independently evaluated by two reviewers. Due to variability in the information, a narrative synthesis was chosen over a meta-analysis. Nineteen studies (757 patients) were included, showing variations in CFL dimensions (2 cm wide and up to 25 cm long). The main processing techniques identified were solvent dehydration, lyophilization, and gamma irradiation. Two studies reported greater tensile strength of CFL compared to synthetic and autologous grafts, with better biocompatibility and a lower risk of erosion compared to synthetic slings. Failures due to material fragmentation (38%) and autolysis (20-27%) were documented. While some studies suggested benefits in hospital stay and complication rates, others questioned CFL durability. The findings on CFL efficacy in SUI are mixed, and further experimental or quasi-experimental studies with long-term follow-up are recommended to evaluate its effectiveness and safety as a surgical option for SUI management.

Keywords: Urinary incontinence. Stress. Allograft. Fascia lata. Cadaver.

Resumen

La incontinencia urinaria de esfuerzo (IUE) es un problema común en mujeres, que plantea retos en salud y economía. Entre las opciones quirúrgicas, se ha propuesto el uso de la fascia lata cadavérica (FLC), aunque su caracterización y eficacia aún son poco conocidas. Esta revisión sintetizó la evidencia sobre la FLC en comparación con otros injertos para tratar la

*Correspondence:

Lyda Z. Rojas

E-mail: lydarojas@fcv.org

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IUE, a partir de una revisión sistemática en Medline-Pubmed y EMBASE (hasta octubre de 2023). Se incluyeron estudios de cualquier diseño e idioma que abordaran el uso de FLC en IUE, seleccionados y evaluados de manera independiente por dos revisores. Debido a la variabilidad de la información, se optó por una síntesis narrativa en lugar de un metaanálisis. Diecinueve estudios (757 pacientes) formaron parte de la revisión, encontrando variaciones en las dimensiones de la FLC (2 cm de ancho y hasta 25 cm de largo). Las principales técnicas de procesamiento incluyeron deshidratación por solventes, liofilización e irradiación gamma. Dos estudios indicaron una mayor resistencia a la tracción de la FLC frente a injertos sintéticos y autólogos, mostrando también mejor biocompatibilidad y menor riesgo de erosión en comparación con las bandas sintéticas. Se documentaron fallos por fragmentación (38%) y autólisis (20-27.8%). Aunque algunos estudios sugirieron beneficios en estancia hospitalaria y complicaciones, otros cuestionaron su durabilidad. Los resultados sobre la eficacia de la FLC en IUE son mixtos, y se recomienda realizar estudios experimentales o cuasi-experimentales a largo plazo para evaluar su eficacia y seguridad en el tratamiento quirúrgico de la IUE.

Palabras clave: Incontinencia urinaria. Estrés. Aloinjerto. Fascia lata. Cadáver.

Introduction

Urinary incontinence (UI) is defined as any involuntary loss of urine. It can be classified into three main types: (1) Stress urinary incontinence (SUI), which, according to the International Urogynecological Association and the International Continence Society, is defined as “the observation of involuntary leakage from the urethra synchronous with physical effort or sneezing or coughing”¹; (2) Urge urinary incontinence, which is reported by the patient as the involuntary leakage of urine accompanied by or immediately preceded by a sudden urge to urinate; and (3) Mixed urinary incontinence, where symptoms of both stress and urge incontinence coexist^{2,3}.

SUI primarily affects women and represents a significant health care and economic burden for society and individuals. It compromises the quality of life and sexual function, increases stress/social isolation, and restricts physical activities⁴⁻⁶. UI contributes to a significant economic burden, with direct costs exceeding \$12 billion for women in the United States, surpassing the cost of breast cancer, which is the most common in this population (\$8.9 billion)⁷. In Colombia, costs can be as high as \$189,800,000.00 COP⁸.

In most studies, the prevalence of UI in women varies between 25% and 45%. It gradually increases with age, peaking early, around 50-54 years (coinciding with menopause), followed by a slight decrease or stabilization until age 70, when the prevalence increases steadily². Regarding the Colombian population, the prevalence of SUI is approximately 8.6%⁹. SUI is associated with significant risk factors such as advanced age, pregnancy and vaginal childbirth, smoking, obesity, pelvic surgery (hysterectomy), menopause, and high-impact exercise, among others¹. It has been shown that Hispanic women are up to 60% less likely

to develop urinary incontinence than non-Hispanic white women¹⁰.

Regarding treatment, the first line for managing mild to moderate SUI is conservative, implementing behavioral therapies, pelvic floor muscle exercises, and lifestyle optimization. For medical treatment, medications such as selective serotonin and norepinephrine reuptake inhibitors, such as duloxetine, can be used for 8-12 weeks in patients who do not respond to conservative treatment and those awaiting surgery. Patients requiring surgical intervention have alternatives such as the pubovaginal sling, which involves placing a short graft (8-10 cm) at the bladder neck, with its ends incorporated into the endopelvic fascia and eventually fixed by fibrosis in the retropubic space. Graft types available for this purpose include fascia lata allografts, fascia lata autografts, synthetic grafts, rectus abdominis fascia autografts, dermis allografts, and xenografts¹¹⁻¹⁴.

Autologous fascia slings were commonly used before 1990, but they lost popularity with the advent of minimally invasive synthetic mid-urethral slings. However, severe long-term complications have been observed with these, such as mesh erosion, chronic pelvic pain, and dyspareunia. This has generated controversy and medicolegal implications for surgeons, leading the United States Food and Drug Administration to warn about their use, significantly reducing their availability and use in many countries¹⁵. In addition, the European Commission requested the Scientific Committee on Emerging and Newly Identified Health Risks to evaluate the use of synthetic meshes, concluding that their use should only be recommended in cases where conventional surgical procedures have failed¹⁶. This has led to the resurgence of natural autologous fascia slings for the surgical treatment of SUI^{17,18}. Cadaveric fascia lata (CFL) slings are attractive due to their lower morbidity,

shorter hospital stays, better biocompatibility, and lower risk of erosion post-implantation¹⁹. However, there is a clinical practice concern about their use due to the risk of infection and lack of knowledge about their utility. Therefore, this systematic review aimed to synthesize the available scientific evidence on the characterization and outcomes of CFL allografts compared to other available grafts for managing SUI.

Study design

This systematic review of the literature was reported following the PRISMA reporting checklist.

Data sources and search strategy

A literature search was conducted for articles published up to October 6, 2023, in the health field's two most important electronic databases (Medline-PubMed and EMBASE) without any language restrictions. Initially, terms related to the PICO elements were used, resulting in zero results, so a broader and more sensitive search was decided. Consequently, terms related to the population and interventions were combined: Urinary Incontinence [Free], Pubovaginal Slings [Free], OR Allografts Fascia Lata [Free]. The search algorithms were: ([Urinary Incontinence] AND [Pubovaginal Slings]) AND [Allografts Fascia Lata] and "stress incontinence"/exp AND "allograft"/exp AND ("fascia lata"/exp OR "fascia lata" OR "fascia lata pediculata" OR "femoral fascia"). The final searches were merged and managed for screening in the rayyan.ai web application.

Eligibility criteria and study selection

Studies were eligible if: (1) the study population was women with SUI; (2) they used CFL slings; and (3) any epidemiological design. Abstracts from scientific events and letters to the editor were excluded. Initially, two reviewers independently screened the titles and abstracts of all studies identified according to the selection criteria. Full texts of studies that met the selection criteria were subsequently retrieved. Any disagreement was resolved by consensus or consultation with a third independent reviewer.

Data extraction

A data extraction form was created in Microsoft Excel to collect relevant information from the included

studies. Two reviewers independently extracted the following data from each study: first author's name, year of publication, title, objective, design, sample size, intervention (CFL), comparator, outcomes, and main results related to outcomes, and conclusions. Any disagreement was resolved by consensus or consultation with a third independent reviewer.

Risk of bias assessment of included studies

Two authors independently assessed the quality of the included studies using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist according to the relevant design²⁰. Each criterion in the JBI checklist was assigned an outcome (yes/no/unclear/not applicable). The total JBI appraisal score was used to classify each review as good, moderate, or low. Quality was assessed on an 11-point scale for cohort studies and systematic reviews (good quality: 9-11 points, moderate quality: 5-8, and low quality: ≤ 4), an 8-point scale for cross-sectional studies (good quality: 7-8 points, moderate quality: 4-6, low quality: ≤ 3), a 6-point scale for narrative reviews (good quality: 5-6 points, moderate quality: 3-4, low quality: ≤ 3), and a 10-point scale for case series (good quality: 8-10 points, moderate quality: 5-7 points, and low quality: ≤ 4 points). Quality was also evaluated in duplicate, with consultation of a third reviewer in case of disagreement.

Statistical analysis

A narrative synthesis was conducted to construct summary tables of the included studies; given their heterogeneity, meta-analysis was not possible.

Results

Identification and selection of studies

The database searches identified 48 studies, of which 19 (757 participants) met the inclusion criteria (Fig. 1).

Most of the studies were conducted in the United States ($n = 14$), followed by Canada ($n = 2$), and three in other countries, each with one study (Belgium, China, and Brazil), between the years 1998 and 2022. Furthermore, most were case series in design ($n = 8$; 44%) (Table 1).

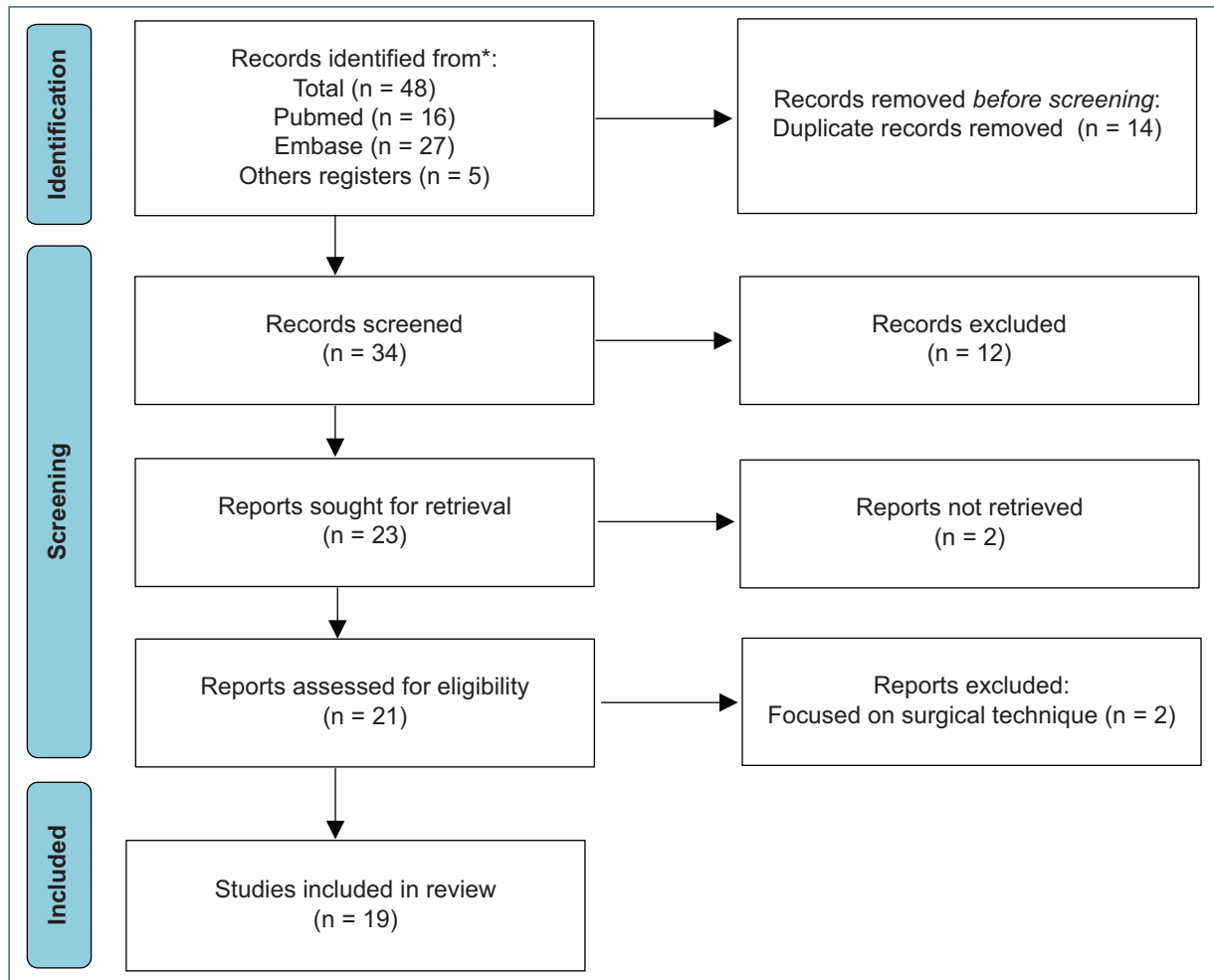


Figure 1. Study identification via database and records.

Characterization of CFL

Size

Most of the included studies reported graft dimensions. Choe et al.²¹ considered a size of 2 × 5 cm to be the most commonly used in clinical practice. Gomelsky et al.¹⁹ mentioned that the lengths of CFL slings ranged from 4 to 25 cm. Vereecken et al.²² mentioned a 2-3 cm fascia lata width. Walsh et al.²³ used a 9-11 cm size. Fitzgerald et al.²⁴ used dimensions of approximately 3 × 10 cm. Huang et al.²⁵ used a length of 7 × 2 cm. Elliot and Boone²⁶, Flynn and Yap²⁷, and Owens and Winters²⁸ employed a size of 2 × 12 cm. Amundsen et al.²⁹, Wright et al.³⁰, and Singla³¹ used dimensions of 2 × 15 cm. Soergel et al.³² used sizes of 2 × 10 cm. Carbone et al.³³ used dimensions of 2 × 6 cm as this size was ideal for providing support and

not placing excessive tension on the urethra and bladder neck when anchored laterally to the pubic bone.

Processing

Many studies also included the processing of CFL in their reviews.^{19,21,24-27,31-33} Gomelsky and Dmochowski¹⁹ conducted a narrative review of the literature, finding that the two main techniques for CFL processing are solvent dehydration and lyophilization. Both techniques require 30 min of rehydration in saline solution before implantation. In addition, they highlighted the lack of standardization in CFL processing in their research. Other researchers used gamma-irradiated CFL processing up to 1.5-2.5 Mrads (15-25 kGy) for tissue sterilization^{21,24,27,31-33}. Authors like Fitzgerald et al.²⁴ reported up to 20% material failure rates when

Table 1. Selected studies

Authors/year/ country	Objective	Study design/ sample size	Intervention/ comparator	Outcomes	Main results	Conclusion
Wright et al. ³⁰ , 1998, Canada	To evaluate whether allograft fascia is a safe and effective alternative to autologous fascia for pubovaginal sling surgery in women with intrinsic sphincter deficiency.	Retrospective study 92 women with intrinsic sphincter deficiency	Allograft fascia versus Autologous fascia	Overall success rates; Post-operative urinary symptoms vaginal pain or discomfort; post-operative sexual function; operational time; length of hospital stays; duration of post-operative suprapubic tube; number of associated pelvic floor reconstructive procedures	There were no statistically significant differences between the groups regarding overall success rates, incidence of post-operative urinary symptoms, vaginal pain or discomfort, post-operative sexual function, or the number of associated pelvic floor reconstructive procedures. Operative time was significantly shorter in the allograft group (87 min) compared to the autograft group (111 min). Length of hospital stay was significantly shorter in the allograft group (1.67 days) compared to the autograft group (2.48 days).	The study suggests that cadaveric allograft fascia is a safe and effective alternative to autologous fascia for pubovaginal sling surgery in women with intrinsic sphincter deficiency. Allograft fascia may reduce operative time and length of hospital stay while providing similar outcomes and complications to autologous fascia.
Fitzgerald et al. ²⁴ , 1999, USA	Reporting on the experience with the use of lyophilized and irradiated fascia lata allografts for suburethral sling procedures.	Case series 32 patients with SUI	Suburethral sling surgery with lyophilized and irradiated fascia lata allograft. versus No comparison group	Performance of lyophilized and irradiated fascia lata allografts.	The material failure rate was 20%. In 7 (20%) patients, the allograft was either absent or severely degenerated upon reoperation for persistent or recurrent SUI.	Lyophilized and irradiated fascia lata are used for suburethral sling procedures, but they are associated with a material failure rate of $\geq 20\%$. Therefore, they are discouraged in this context.
Elliott and Boone ²⁶ , 2000, USA	Provide important information on using cadaveric fascia lata as material for pubovaginal sling procedures in patients with SUI and contribute to the development of evidence-based practice in this area.	Retrospective case series 26 women with SUI	Pubovaginal sling using irradiated and lyophilized cadaveric fascia lata (Tutoplast), terminally irradiated with 25 kGy (2.5 Mrads) of gamma radiation	Symptom improvement, sanitary pad use.	92% of patients used one or fewer sanitary pads per day. 96% reported significant symptom improvement after surgery.	The continued use of cadaveric allograft for pubovaginal sling procedures in patients with SUI is recommended, given its intraoperative and post-operative advantages. A long-term evaluation of the durability of cadaveric slings compared to autologous fascia is justified.

(Continues)

Table 1. Selected studies (continued)

Authors/year/ country	Objective	Study design/ sample size	Intervention/ comparator	Outcomes	Main results	Conclusion
			for sterilization as sling material. versus Historical cure rates using rectus fascia.			
Amundsen et al. ³⁷ , 2000, USA	Determine whether the use of cadaveric fascia lata material offers success rates similar to rectus fascia. Furthermore, evaluate the infectious morbidity associated with the procedure and post-operative quality of life.	Retrospective cohort 91 women	Placement of a lyophilized allograft pubovaginal sling obtained from a tissue bank and prepared through a patented process (lyophilization, irradiation, and sterilization). versus No comparison group	Quality of life, urinary symptoms, post-operative sanitary pad use, and post-operative complications.	Pre-operative mean daily sanitary pad use was 4.6 ± 3.0 . Post-operative use was 1.1 ± 1.4 ($p < 0.0001$). 63% of patients had resolution of any SUI symptoms. 100% of patients reported no substantial impact on their quality of life. No post-operative complications related to the allograft material were observed.	The use of fascia lata pubovaginal sling allograft is a safe and effective treatment option in both the short and long term.
Singla ³¹ , 2000, USA	Synthesize the available evidence to date on interventions with cadaveric fascia lata pubovaginal sling.	Narrative review Six studies	Cadaveric fascia lata pubovaginal sling versus Synthetic slings, autografts	Safety, efficacy, durability, complications, cost	The main complication after a pubovaginal sling is <i>de novo</i> detrusor instability in 10-40% of cases. Prolonged urinary retention may occur in 5% of patients; ureteral, bladder, or vaginal injuries are rare. Both allografts and autografts were equally well tolerated, with no infection or erosion of the sling material observed. Overall continence rates were comparable between the two groups: 98% for allografts versus 94% for autografts.	The results of the narrative review support the safety, efficacy, and durability of fascia lata: in early follow-up, the results are comparable to the autograft fascia sling, but long-term results are still awaited. The use of processed fascia poses an insignificant risk of disease transmission. To date, no adverse outcomes have been reported.

(Continues)

Table 1. Selected studies (*continued*)

Authors/year/ country	Objective	Study design/ sample size	Intervention/ comparator	Outcomes	Main results	Conclusion
					Allografts resulted in an 83% reduction in average post-operative pain, the operation took half the time, and the hospital stay and convalescence period were also significantly shorter. Operation duration and hospital stay were reduced from 151 to 115 min ($p = 0.03$) and from 2.1 to 1.4 days ($p = 0.005$), respectively. Unit cost savings were \$750/patient using cadaveric fascia. No complications were observed during the median follow-up of 8 months	
Choe et al. ²¹ , 2001, USA	Using the Instron tensiometer, compare the biomechanical properties of allografts, autografts, and synthetic materials used in sling surgery.	Cross-sectional analytical study. 20 women undergoing vaginal prolapse surgery.	Cadaveric allograft slings versus Synthetic and autologous slings	Tensile strength.	Full-strip sling: Cadaveric allografts showed the highest tensile strength, followed by synthetic and autologous tissues ($p < 0.05$). Suture-with-patch sling: Synthetic and dermal tissues (autograft and allograft) had higher tensile strength, followed by cadaveric fascia lata, rectal fascia, and vaginal mucosa ($p < 0.05$). The tensile strength of full-strip slings was greater than that of suture-with-patch slings in all groups ($p \leq 0.001$).	Within each graft subgroup, regardless of the material evaluated, the full-strip sling has greater tensile strength than the suture-with-patch sling. Cadaveric fascia lata shows a significantly higher mean maximum load to failure.

(Continues)

Table 1. Selected studies (continued)

Authors/year/ country	Objective	Study design/ sample size	Intervention/ comparator	Outcomes	Main results	Conclusion
Vereecken and Lecha ²⁹ , 2001, Belgium	Report on the use of cadaveric fascia lata slings in the treatment of intrinsic sphincter deficiency and describe the authors' experience with this material in severe incontinence cases.	Case series Eight women underwent urethroplasty with a cadaveric fascia lata sling.	Urethroplasty with a cadaveric fascia lata sling. versus No comparison group	Complications, reinterventions, material-related issues	The cadaveric fascia lata sling was well-tolerated and resulted in good continence without obstructions. The use of cadaveric fascia allograft had a lower risk of erosion and rejection compared to synthetic materials.	The cadaveric fascia lata sling is a safe and effective treatment option for women with intrinsic sphincter deficiency. Cadaveric fascia lata showed lower morbidity, shorter hospital stays, reduced risk of complications, and a high likelihood of long-term success.
Huang et al. ²⁵ , 2001, China	Evaluate the efficacy and safety of using fascia lata allograft in pubovaginal sling surgery for SUI.	Retrospective case series 18 women with SUI	Pubovaginal sling surgery using gamma-irradiated and solvent-dehydrated human fascia lata as sling material. versus Previous studies using different sling materials.	Subjective success rate, Failure rate	Mean subjective success rate of 82.5% (range 50-100%) with fascia lata allograft. The failure rate was 27.8%, with total recurrence of incontinence within 3-6 months post-surgery.	Gamma-irradiated and solvent-dehydrated fascia lata allografts are not reliable for use in pubovaginal sling surgery. Their high failure rates within a short period prohibit their use in the treatment of SUI.
Soergel et al. ³² , 2001, USA	Report on the poor surgical outcomes observed after using fascia lata allografts in pubovaginal slings to treat intrinsic urethral sphincter deficiency.	Cross-sectional analytical study 12 patients with genuine stress incontinence complicated by intrinsic sphincter deficiency and urethral hypermobility.	Placement of pubovaginal sling for incontinence treatment. The sling material used was fascia lata allografts harvested from cadavers and processed by three companies. versus Rectal autologous fascia sling.	Cure rate	33.3% of patients with cadaveric fascia lata had effective treatment, compared to 78.8% with rectal autologous fascia.	Fascia lata allografts are a poor choice for pubovaginal slings.
Carbone et al. ³³ , 2001, USA	Evaluate the efficacy and safety of the pubovaginal sling procedure using cadaveric fascia and bone anchors to treat SUI.	Retrospective cohort 154 patients	Pubovaginal sling procedure. versus No comparison group.	Efficacy, outcomes, complications.	39.6% had moderate-to-severe recurrent SUI during 10 months of follow-up. 26 patients underwent a second pubovaginal sling intervention at 9 months	Recurrent SUI is directly related to the failure of the cadaveric fascia anchored to the bone. Therefore, the study institution discontinued the use of cadaveric fascia allografts in all pubovaginal slings.

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Table 1. Selected studies (*continued*)

Authors/year/ country	Objective	Study design/ sample size	Intervention/ comparator	Outcomes	Main results	Conclusion
					(range 3-15) after the first procedure, with a recovery rate of 16.9%. All of these patients had fragmented, attenuated, or absent cadaveric allograft fascia.	
Walsh et al. ²³ , 2002, USA	Evaluate and quantify the efficacy of cadaveric fascia lata as allograft material in pubovaginal slings for SUI.	Case series 31 women with SUI	Pubovaginal sling surgery with cadaveric fascia lata allograft. versus No comparison group.	Surgical time, blood loss, hospital stay, and surgical complications.	At 13.5 months of follow-up, 93% of patients had complete resolution of SUI. At 1 year, 94% of patients no longer had symptoms of overactive bladder. The severity of leakage and storage symptoms was significantly lower ($p < 0.002$).	The pubovaginal sling using cadaveric fascia lata allograft is a highly effective and safe surgical method (shorter surgical time, shorter hospital stay, and reduced complications) for resolving SUI. Storage symptoms and patient satisfaction were significantly improved at 1 year using cadaveric fascia lata.
Flynn and Yap ²⁷ , 2002, USA	Evaluate the efficacy and safety of using cadaveric fascia allograft versus autologous fascia graft in women undergoing pubovaginal sling procedure for SUI.	Case series 134 women with SUI	Sling made from autologous tissue. versus Sling made from allografts	Surgical success, post-operative complications; patient satisfaction; post-operative pain and disability; overall cure rate; recurrence of symptoms.	The use of cadaveric fascia allograft as an alternative to autologous fascia resulted in a significant decrease in post-operative pain and disability ($p < 0.05$). No statistical differences existed in the overall stress and urgency incontinence cure rate between the allograft and autograft groups ($p = 0.42$). There was no difference in the total number of recurrent SUI cases ($p = 0.58$).	The use of cadaveric fascia allograft as an alternative to autologous fascia for pubovaginal sling significantly reduces post-operative pain and disability without compromising efficacy at 2 years.

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Table 1. Selected studies (continued)

Authors/year/ country	Objective	Study design/ sample size	Intervention/ comparator	Outcomes	Main results	Conclusion
O'Reilly and Govier ³⁴ , 2002, USA	Investigate the mid-term failure rate using cadaveric fascia lata in the treatment of recurrent SUI.	Case series eight patients	Sling with frozen cadaveric fascia lata	Type of fascia, surgical technique, pre-and post-operative urodynamic, surgical history, and medical comorbidities.	All patients experienced recurrent SUI, with no urgency incontinence or detrusor instability. The mean time to failure was 6.5 months (range 4-13). The group of patients with cadaveric fascia lata had a failure rate of 7%. Two patients experienced failure within the 1 st month.	A higher-than-expected mid-term failure rate was identified using frozen cadaveric fascia lata. It was concluded that graft failure is the most likely cause of these mid-term failures, which have not been observed in autologous cases. Longer follow-up and larger numbers are needed to determine the extent of the problem and which patient characteristics are relevant when selecting cadaveric grafts.
Amundsen et al. ²⁸ , 2003, USA	Present a series of urethral erosions following pubovaginal sling procedures due to synthetic and non-synthetic materials. Discuss the management and outcome of continence.	Case series Nine patients with urethral erosion	Non-synthetic slings (allograft fascia and autograft fascia) versus Synthetic slings (ProteGen and Polypropylene)	Measurement of pad usage and recurrence of symptoms.	At 30 months post-procedure, nine women presented with some manifestation of voiding dysfunction, such as urinary retention in four, urgency incontinence in three, and mixed incontinence in two. Urinary retention resolved in three patients, and urgency incontinence resolved in four. SUI persisted in two of the three patients in the synthetic group, while no patient in the non-synthetic group had recurrent SUI. No recurrent urethral erosions or fistulas occurred in either group.	Urethral erosion after a pubovaginal sling procedure can occur regardless of the sling material. However, recurrent SUI is not an inevitable outcome of treating urethral erosion following a pubovaginal sling intervention.

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Table 1. Selected studies (*continued*)

Authors/year/ country	Objective	Study design/ sample size	Intervention/ comparator	Outcomes	Main results	Conclusion
Almeida et al. ³⁵ , 2004, Brazil, USA	Compare the technique and outcomes of patients treated with allografts or autografts as pubovaginal slings.	Cohort study Group A (allograft): 30 women. Group B (autograft): 30 women.	Cadaveric fascia lata allograft versus Autologous fascia lata	Cure rate; adverse outcomes; surgical time; and hospital stay.	Group A: 40% of patients were cured, and 28% had improved at an average follow-up of 36 months (22-44 months). Group B: 70% of patients were cured, and 20% improved at an average follow-up of 33 months (24-41 months). There were no adverse outcomes related to sling erosion or infection. The mean time for allograft sling placement was 62 min, whereas for sling placement requiring fascial harvest was 81 min ($p < 0.05$). The mean hospital stay was shorter with the allograft (1.25 days) compared to the autograft (2.48 days) ($p < 0.05$).	The frozen cadaveric fascia lata sling is safe, requires shorter surgical time and hospital stay, but the 3-year continence rate is lower than that of the autograft surgery. The use of allografts was associated with shorter surgical and hospital stay times compared to an autograft, but the 3-year continence rate was lower in the autograft group.
Owens and Winters ²⁸ , 2004, USA	Provide information on the use of cadaveric dermal allograft Duraderm as sling material for SUI.	Retrospective cohort 25 patients with SUI.	Duraderm dermal grafts of 2 × 12 cm. versus No comparison group.	Procedure effectiveness; patient satisfaction; symptom reduction	At 6 months, 68% of patients were dry, 24% improved, and 8% failed. At 14.8 months, 32% of patients were dry, 36% improved, and 32% experienced Duraderm sling failure. The average post-operative pad use was 1.4. 76% of patients were satisfied with the surgical outcome.	The use of Duraderm allograft reported an initial success rate of 68%. However, this decreased to 32% at 14.8 months. Graft degeneration after using cadaveric fascia lata may be possible following the implementation of cadaveric dermis.

(Continues)

Table 1. Selected studies (continued)

Authors/year/ country	Objective	Study design/ sample size	Intervention/ comparator	Outcomes	Main results	Conclusion
Gomelsky and Dmochowski ¹⁹ , 2005, USA	Evaluate the outcomes of available sling materials in the context of biocompatibility and tissue acceptance.	Narrative Review 16 studies	Non-synthetic slings versus synthetic slings	Not applicable.	Allografts eliminate the time and morbidity associated with the harvesting of autologous fascia. In addition, greater biocompatibility and a lower erosion risk have been observed compared to synthetic slings. There is a risk of disease transmission with the use of allograft tissues.	The processing of cadaveric fascia lata is not standardized. Its use may be associated with high short and medium-term failure rates. The incorporation of cadaveric allografts in sling surgery has reduced operative time, the morbidity of autologous fascia harvesting, and shortened post-operative recovery. Solvent-dehydrated cadaveric fascia lata is more durable than lyophilized fascia.
Pianezza et al. ³⁸ , 2007, Canada	Evaluate long-term patient satisfaction after pubovaginal fascia lata cadaveric sling surgery using the UDI and the IIQ short form	Case series 37 patients	Pubovaginal fascia lata cadaveric sling versus No comparison group.	Quality of life, patient satisfaction	The mean UDI score was 75.8, and the mean IIQ-7 score was 21.4. There were no differences in the mean IIQ-7 score for patients with more than 4 years of follow-up compared to the entire group (28.8, $p = 0.22$). In contrast, the mean UDI score for patients with more than 4 years of follow-up was higher than that of the entire group (99.1, $p = 0.04$). The UDI subscale analysis revealed that patients mainly complained of irritative and stress symptoms rather than obstruction/discomfort ($p < 0.01$). Patients with pre-operative mixed incontinence had higher mean UDI and IIQ-7 scores than patients with pure stress incontinence (96.7 vs. 58.0, $p = 0.04$; 32.5 vs. 11.9, $p = 0.03$).	Long-term global scores for evaluating quality of life (IIQ-7) were good, and UDI scores were satisfactory after pubovaginal sling surgery. Patients with pre-operative mixed incontinence are at higher risk of post-operative dissatisfaction.

(Continues)

Table 1. Selected studies (continued)

Authors/year/ country	Objective	Study design/ sample size	Intervention/ comparator	Outcomes	Main results	Conclusion
Cabrales et al. ³⁶ , 2022, USA	Describe the available data on outcomes, complications, and durability of allograft sling materials used to treat SUI.	Systematic review 14 studies	Allograft fascia lata; autograft fascia lata; cadaveric dermis; autograft rectus fascia; synthetic; xenograft versus No comparison group	Follow-up, cure, <i>de novo</i> incontinence, operative time, hospital stay, complications.	Success rates using allograft material ranged from 68% to 98%. Two studies demonstrated a shorter lifespan for cadaveric fascia. Cadaveric fascia lata had shorter operative times, shorter post-operative hospital stays, and lower infection rates. Procedures with allografts ranged from 62 to 87 min, while procedures with autografts averaged between 82 and 119 min. Success was defined as the use of one or fewer pads per day. Some studies have evidenced the recurrence of SUI symptoms within 3-6 months	Cadaveric allograft fascia has proven to be an effective option in terms of success rates and satisfaction scores compared to other materials. The allograft procedure offers shorter operations, shorter post-operative hospital stays, and a low risk of wound complications. Limitations of the reported data include variation in follow-up times, single-institution series, and different definitions of success. Uncertainty about the durability of allografts prevents their standardization.

SUI: stress urinary incontinence; UDI: urogenital distress inventory; IQ: incontinence impact questionnaire.

processed by lyophilization or subjected to irradiation. Huang et al.²⁵ had up to 27.8% failure rates if processed by solvent dehydration or gamma irradiation.

DURABILITY

Regarding the durability of the CFL sling, Choe et al.²¹ and Vereecken and Lechat²² showed greater tensile strength in cadaver allografts compared to synthetic and autologous tissues ($p < 0.05$). Regarding long-term durability, some authors have followed CFL for 12 months, finding consistent material fragmentation failures of up to 38%³³.

On the other hand, authors such as Fitzgerald et al.²⁴ and Huang et al.²⁵ mentioned the poor performance of allograft slings according to their processing. Fitzgerald et al.²⁴ documented fascia autolysis of up to 20% in those processed by lyophilization or irradiation. Huang et al.²⁵ reported a failure rate of up to 27.8% when using gamma-irradiated and solvent-dehydrated allograft fascia lata. Other authors^{19,34} observed early failure rates of up to 20% in frozen-processed allograft slings¹⁹.

Regarding durability related to rejection or infection transmission risk, Gomelsky and Dmochowski¹⁹ and Vereecken and Lechat²² argue that allografts have more excellent biocompatibility and a lower erosion risk than synthetic slings. In addition, Gomelsky and Dmochowski¹⁹ point out probable factors influencing CFL sling durability, such as host reaction to the graft, accelerated immunity, and autolysis. Almeida et al.³⁵ and Singla³¹ compared outcomes between patients treated with allograft and autograft, finding no adverse events regarding material erosion or infection, concluding that CFL use is safe for patients with an insignificant risk of disease transmission. Cabrales et al.³⁶ observed lower infection rates with CFL use.

Outcomes

Outcomes were evaluated in various ways, including the number of daily pads used, quality of life, symptom frequency, and patient satisfaction postoperatively^{23,27,28,30,35}.

DECREASE PADS

The success rate was determined by the number of daily pads used, as noted in several studies^{23,26,28,36,37}. The daily average of pads used for managing urinary incontinence ranged between 3.2 and 4.6^{23,26,37}.

A significant decrease in pad use was observed immediately after surgery, with an average of 1 ± 1.4 pads ($p < 0.0001$)^{26,37}, reaching as low as 0.8 pads at 1 year of follow-up²³. Flynn and Yap²⁷ classified urinary incontinence outcomes by the number of pads used in 24 h, categorizing them as cured (0 pads), improved (1 pad), and failed (more than one pad). The mean post-operative pad use was 0.7 ± 1.3 . Up to 29% of patients still required one or more pads daily.

QUALITY OF LIFE AND PATIENT SATISFACTION POSTOPERATIVELY

Authors such as Almeida et al.³⁵ showed that most participants (87%) did not consider urinary incontinence a significant impact on their quality of life, whereas Walsh et al.²³ observed a reduction in symptom frequency at 4 months and 1-year post-surgery. However, variability in patient satisfaction perception was observed among different studies. Flynn and Yap²⁷ identified lower satisfaction in patients who received allografts, although this was not significant ($p = 0.05$). However, other studies, such as that of Owens and Winters²⁸, reported a 90% satisfaction rate at 6 months postoperatively with allograft use, which decreased to 60% at 14 months. In addition, Pianezza et al.³⁸ demonstrated satisfactory scores in symptom reduction with CFL use during 2 years of follow-up.

PATIENT SATISFACTION POSTOPERATIVELY

Symptom recurrence was considered one of the outcomes in various studies. Huang et al.²⁵ observed complete urinary incontinence recurrence in five patients (27.8%) within 3-6 months. In contrast, Flynn and Yap²⁷ found no significant difference in recurrence between allograft and autograft use (eight and seven cases, respectively; $p = 0.58$).

The principal characteristics and findings of the CFL can be found in [figure 2](#).

Quality of the studies

The quality of the included studies was mainly moderate ($n = 9$; 47.36%). In addition, eight studies (42.10%) were of good quality, whereas two were considered low quality (10.52%). The low quality of the mentioned studies was due to issues in participant selection, sample description, and statistical analysis ([Table 2](#)).

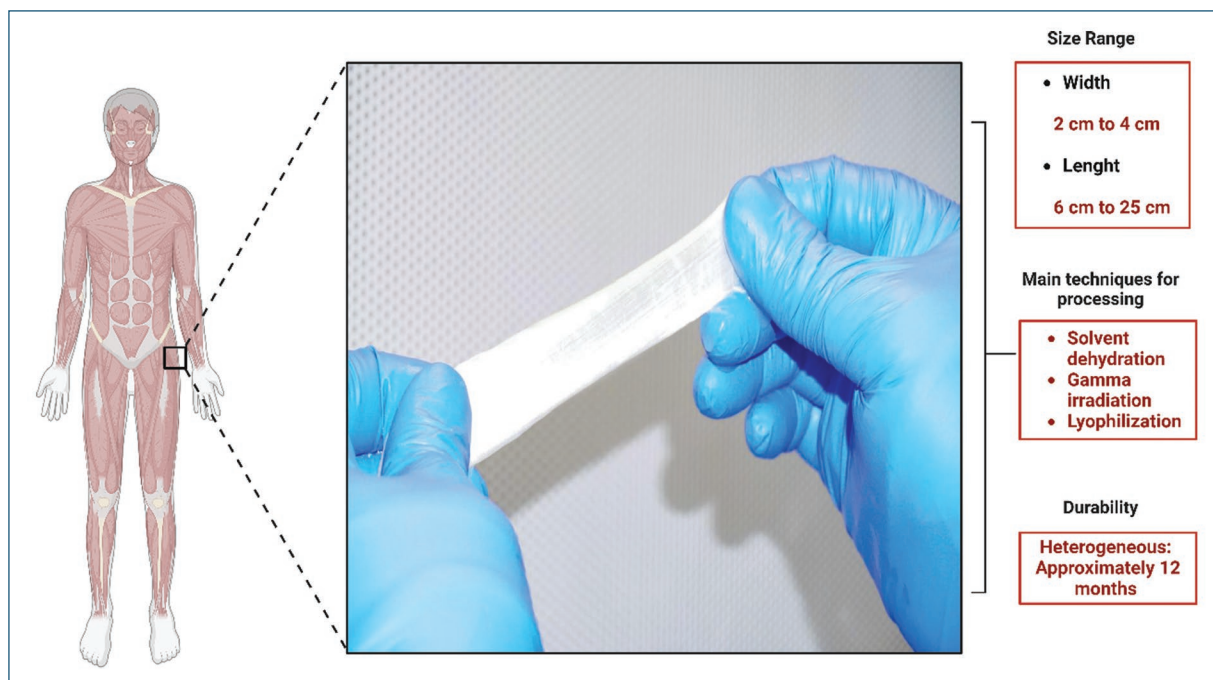


Figure 2. Main characteristics and findings of the cadaveric fascia lata.

Discussion

CFL has been considered in recent years as a potential substitute for synthetic materials and non-synthetic tissues for various surgical procedures¹⁹. Our literature review shows the use of cadaveric allografts with dimensions generally ranging from 2 cm in width up to 25 cm in length for the surgical treatment of SUI. CFL could be an alternative for pubovaginal sling procedures in women with SUI, as some studies have shown a reduction in operative time, hospital stay, and complications compared to other available grafts. However, the reported evidence is heterogeneous, with small sample sizes, short follow-ups, low-level epidemiological designs for assessing efficacy/safety, and moderate quality.

The success or failure of CFL allografts depends on several factors, such as size, processing, and durability. The three main CFL processing techniques are solvent dehydration, gamma irradiation, and lyophilization. Although the processing method used can influence the tensile strength of the allograft bands²¹, there is currently a need to standardize this process¹⁹, leading to contradictory results in different studies^{21,24,27,31-33}. While authors such as Fitzgerald et al.²⁴ and Huang et al.²⁵ reported material failure rates ranging from 20%

to 27.8% when processing CFL by solvent dehydration, lyophilization, or irradiation, the sample sizes used in their investigations do not allow for generalizing the results. The recipient's immune system specifics likely influenced these findings¹⁹.

The results regarding the durability of CFL allografts are also heterogeneous. Different authors documented alterations in allograft durability^{19,24,25}. Carbone et al.³³ found up to 38% material fragmentation rates during a 12-month follow-up. However, authors like Walsh et al.²³ reported symptom resolution in 93.5% of patients at 13.5 months follow-up, which is also related to CFL durability. Although it has been thought over the years that CFL has lower durability and biocompatibility due to its high risk of disease transmission¹⁹, all cadaveric allografts undergo thorough serological screening, with the estimated risk of HIV transmission being one in 8 million people³⁹. Other factors, such as host reaction to the graft, accelerated immunity, and autolysis, may be directly related to material durability¹⁹.

The outcomes associated with CFL use have mainly been satisfactory. Studies such as those by Walsh et al.²³ and Elliot et al.²⁶ showed cure rates above 70% even at 13.5 and 15 months follow-up, respectively. In general, most studies considered a successful surgical procedure based on the number of daily pads used

Table 2. Risk of bias assessed by the JBI

Author/year	JBI checklist items for cross-sectional studies											
	Clear inclusion criteria	Description of study subjects and setting	Exposure measurement	Measurement criteria	Identification of confounding factors	Strategies for confounding factors	Outcomes measurement	Proper statistical analysis	Overall rating			
Choe et al. ²¹ (2001)	Y	Y	Y	Y	U	U	Y	Y	Moderate risk			
Soergel et al. ³² (2001)	Y	Y	Y	Y	U	U	Y	Y	Moderate risk			
Author/year	JBI checklist items for cohorts											
	Two groups similar and recruited from the same population	The exposures measured similarly to assign people to both exposed and unexposed groups	Exposure measurement	Identification of confounding factors	Strategies for confounding factors	Groups/ participants free of the outcome	Outcomes measurement	Follow-up time	Follow-up complete. If not, they describe the reasons	Strategies to address incomplete follow-up utilized	Proper statistical analysis	Overall rating
Almeid et al. ³⁵ (2004)	U	Y	U	N	N	U	N	Y	N	N	N	High risk
Amundsen et al. ³⁷ (2000)	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Moderate risk
Author/year	JBI checklist case series											
	Clear inclusion criteria	Condition measured in a standard.	Valid methods used for identification of the condition	Consecutive inclusion of participants	Complete inclusion of participants	Clear reporting of the demographics of the participants	Clear reporting of clinical information	Outcomes or follow-up time clear	Clear reporting of the presenting site (s)/clinic (s) demographic information	Proper statistical analysis	Overall rating	
Vereecken et al. ²² (2001)	Y	N	N	Y	U	N	Y	Y	N	N	High risk	
Walsh, et al. ²³ (2002)	N	Y	Y	N	N	N	Y	Y	N	Y	Moderate risk	(Continues)

(Continues)

Table 2. Risk of bias assessed by the JBI (*continued*)

Author/year	JBI checklist case series											Overall rating
	Clear inclusion criteria	Condition measured in a standard.	Valid methods used for identification of the condition	Consecutive inclusion of participants	Complete inclusion of participants	Clear reporting of the demographics of the participants	Clear reporting of clinical information	Outcomes or follow-up time clear	Clear reporting of the presenting site (s)/clinic demographic information	Proper statistical analysis		
Fitzgerald et al. ²⁴ (1999)	Y	Y	Y	Y	N	N	Y	Y	N	Y	Moderate risk	
Huang et al. ²⁵ (2001)	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Low risk	
Elliot and Boone ²⁶ (2000)	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Low risk	
Flynn and Yap ²⁷ (2002)	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Low risk	
Owens and Winters ²⁸ (2004)	U	Y	Y	U	Y	N	Y	Y	N	Y	Moderate risk	
Amundsen et al. ²⁹ (2003)	Y	Y	Y	Y	Y	N	Y	Y	N	N	Moderate risk	
Wright et al. ³⁰ (1998)	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Low risk	
Carbone et al. ³³ (2001)	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Low risk	
O'Reilly and Govier ³⁴ (2002)	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Low risk	
Pianezza et al. ³⁸ (2007)	Y	Y	Y	U	N	N	Y	Y	N	Y	Moderate risk	

(Continues)

Table 2. Risk of bias assessed by the JBI (*continued*)

Author/year	JBI checklist textual evidence: narrative											
	Generator of the narrative is credible or appropriate source	Relationship between the text and its context explained	Narrative presents the events using a logical sequence	Similar conclusions to those drawn by the narrator	Conclusions flow from the narrative account	Consider this account to be a narrative	Overall rating					
Gomelsky and Dmochowski ¹⁹ (2005)	Y	Y	Y	Y	Y	Y	Low risk					
Singla ³¹ (2000)	Y	Y	Y	Y	Y	Y	Low risk					
Author/year	JBI checklist items for systematic reviews											
	Review question clearly and explicitly stated	Inclusion criteria appropriate for the review question	Search strategy appropriate	Sources and resources used to search for studies adequate	Criteria for appraising studies appropriate	Critical appraisal conducted by two or more reviewers independently	Methods to minimize errors in data extraction	Methods used to combine studies appropriate	Likelihood of publication bias assessed	Recommendations for policy and/or practice supported by the reported data	Specific directives for new research appropriate	Overall rating
Cabrales et al. ³⁶ (2022)	Y	Y	Y	Y	Y	N	N	Y	N	Y	Y	Moderate risk

N: no; Y: yes; U: unclear.

postoperatively and the reduction of SUI symptoms over time. In addition, the decrease in daily pad use was associated with patient satisfaction, with the CFL surgical procedure being recommended by up to 96% at 15 months follow-up²⁶.

This study has several strengths and limitations. Although a more specific rather than sensitive search was prioritized, the found articles answered the established research question, whereas broader searches yielded zero results or identified titles that did not answer the research question. As with all systematic reviews, we are prone to publication bias; however, the search terms were related to the two most important topics in this review (population and intervention). It is also relevant to consider that the quality of the individual studies included in this review was moderate, with small sample sizes, short follow-ups, and epidemiological designs inadequate for evaluating the efficacy and safety of CFL allografts for the surgical treatment of SUI. An advantage of this research is that it includes the characterization of CFL in terms of size, processing, and durability instead of limiting it only to durability and outcome effects.

In conclusion, there are divergent findings regarding the characteristics and efficacy of CFL allografts for managing SUI; however, these allografts have been considered an alternative for managing this condition in recent years. Some studies have shown improved patients' quality of life, finding acceptable satisfaction levels and positive recommendations after surgery. Other studies observed that incorporating CFL significantly reduces hospital stays, complications, and satisfactory success rates. However, the evidence is primarily from observational studies with short follow-ups and limited sample sizes. Future research should focus on designing experimental or quasi-experimental studies with long-term follow-up and adequate sample sizes to evaluate the efficacy and safety of CFL as a therapeutic option for the surgical management of SUI.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Ethical considerations

Protection of humans and animals. The authors declare that no experiments involving humans or animals were conducted for this research.

Confidentiality, informed consent, and ethical approval. The authors have followed their institution's confidentiality protocols, obtained informed consent from patients, and received approval from the Ethics Committee. The SAGER guidelines were followed according to the nature of the study.

Declaration on the use of artificial intelligence. The authors declare that no generative artificial intelligence was used in the writing of this manuscript.

References

1. Osman NI, Li Marzi V, Cornu JN, Drake MJ. Evaluation and classification of stress urinary incontinence: current concepts and future directions. *Eur Urol Focus*. 2016;2:238-44.
2. Kupfer N, Clancy A, Maguire F, Stairs J. Prevalence and risk factors for urinary incontinence in nulliparous women: a contemporary, population-based cohort study. *Urogynecology (Phila)*. 2023;29:520-7.
3. González De Castro L, Condé Rocha S, Silva Fernandes S, Chaves R, Hernández Aguirre E, Arrieta De Castro F. Urinary incontinence of esfinterial deficiency effort. *Salud Uninorte*. 2019;34:784-96.
4. Khandelwal C, Kistler C. Diagnosis of urinary incontinence. *Am Fam Physician*. 2013;87:543-50.
5. Salonia A, Zanni G, Nappi RE, Briganti A, Dehò F, Fabbri F, et al. Sexual dysfunction is common in women with lower urinary tract symptoms and urinary incontinence: results of a cross-sectional study. *Eur Urol*. 2004;45:642-8; discussion 648.
6. Carreño LM, Angarita-Fonseca A, Pinto AL, Delgado AN, García LM. Calidad de vida relacionada con salud e incontinencia urinaria en mujeres con exceso de peso de Bucaramanga, Colombia. *Rev Cienc Salud*. 2015;13:63-76.
7. Abufaraj M, Xu T, Cao C, Siyam A, Isleem U, Massad A, et al. Prevalence and trends in urinary incontinence among women in the United States, 2005-2018. *Am J Obstet Gynecol*. 2021;225:166.e1-2.
8. López-Ramos HE, García-Perdomo HA, Martínez VP, Prada J, Rosselli D. Costo-efectividad de las cintas de uretra media comparada con el tratamiento convencional de la incontinencia urinaria femenina de esfuerzo en Colombia. *Urol Colomb J*. 2020;29:141-7.
9. Plata M, Bravo-Balado A, Robledo D, Trujillo CG, Caicedo JI, Cataño JG, et al. Prevalence of lower urinary tract symptoms and overactive bladder in men and women over 18 years old: the Colombian overactive bladder and lower urinary tract symptoms (COBaLT) study. *Neurourol Urodyn*. 2019;38:200-7.
10. Nygaard IE, Heit M. Stress urinary incontinence. *Obstet Gynecol*. 2004;104:607-20.
11. Abrams P, Andersson KE, Birder L, Brubaker L, Cardozo L, Chapple C, et al. Fourth international consultation on incontinence recommendations of the international scientific committee: evaluation and treatment of urinary incontinence, pelvic organ prolapse, and fecal incontinence. *Neurourol Urodyn*. 2010;29:213-40.
12. Sharma JB, Deoghare MK, Bhatia N, Kachhawa G, Mahey R, Kumari R, et al. A comparative study of autologous rectus fascia pubovaginal sling surgery and synthetic transobturator vaginal tape procedure in treatment of women with urodynamic stress urinary incontinence. *Eur J Obstet Gynecol Reprod Biol*. 2020;252:349-54.
13. Lipp A, Shaw C, Glavind K. Mechanical devices for urinary incontinence in women. *Cochrane Database Syst Rev*. 2014;2014:CD001756.
14. Dumoulin C, Cacciari LP, Hay-Smith EJ. Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women. *Cochrane Database Syst Rev*. 2018;10:CD005654.
15. Administration USFD. FDA Takes Action to Protect Women's Health, Orders Manufacturers of Surgical Mesh Intended for Transvaginal Repair of Pelvic Organ Prolapse to Stop Selling All Devices; 2019. Available from: <https://www.fda.gov/news-events/press-announcements/fda-takes-action-protect-womens-health-orders-manufacturers-surgical-mesh-intended-transvaginal>

16. Commission E. ¿Es Segura La Utilización De Mallas Quirúrgicas En Cirugía Uroginecológica? 2016. Available from: https://ec.europa.eu/health/newsletter/166/focus_newsletter_es.htm
17. Blaivas JG, Simma-Chiang V, Gul Z, Dayan L, Kalkan S, Daniel M. Surgery for stress urinary incontinence: autologous fascial sling. *Urol Clin North Am.* 2019;46:41-52.
18. Khan AA, Rosenblum N, Brucker B, Nitti V. Changes in management of stress urinary incontinence following the 2011 FDA health notification. *J Clin Urol.* 2017;10:440-8.
19. Gomelsky A, Dmochowski RR. Bladder neck pubovaginal slings. *Expert Rev Med Devices.* 2005;2:327-40.
20. Santos WM, Secoli SR, Puschel VA. The Joanna Briggs Institute approach for systematic reviews. *Rev Lat Am Enfermagem.* 2018;26:e3074.
21. Choe JM, Kothandapani R, James L, Bowling D. Autologous, cadaveric, and synthetic materials used in sling surgery: comparative biomechanical analysis. *Urology.* 2001;58:482-6.
22. Vereecken RL, Lechat A. Cadaver fascia lata sling in the treatment of intrinsic sphincter weakness. *Urol Int.* 2001;67:232-4.
23. Walsh IK, Nambirajan T, Donellan SM, Mahendra V, Stone AR. Cadaveric fascia lata pubovaginal slings: early results on safety, efficacy and patient satisfaction. *BJU Int.* 2002;90:415-9.
24. Fitzgerald MP, Mollenhauer J, Brubaker L. Failure of allograft suburethral slings. *BJU Int.* 1999;84:785-8.
25. Huang YH, Lin AT, Chen KK, Pan CC, Chang LS. High failure rate using allograft fascia lata in pubovaginal sling surgery for female stress urinary incontinence. *Urology.* 2001;58:943-6.
26. Elliott DS, Boone TB. Is fascia lata allograft material trustworthy for pubovaginal sling repair? *Urology.* 2000;56:772-6.
27. Flynn BJ, Yap WT. Pubovaginal sling using allograft fascia lata versus autograft fascia for all types of stress urinary incontinence: 2-year minimum followup. *J Urol.* 2002;167:608-12.
28. Owens DC, Winters JC. Pubovaginal sling using Duraderm graft: intermediate follow-up and patient satisfaction. *Neurourol Urodyn.* 2004;23:115-8.
29. Amundsen CL, Flynn BJ, Webster GD. Urethral erosion after synthetic and nonsynthetic pubovaginal slings: differences in management and continence outcome. *J Urol.* 2003;170:134-7; discussion 7.
30. Wright EJ, Iselin CE, Carr LK, Webster GD. Pubovaginal sling using cadaveric allograft fascia for the treatment of intrinsic sphincter deficiency. *J Urol.* 1998;160:759-62.
31. Singla AK. The use of cadaveric fascia lata in the treatment of stress urinary incontinence in women. *BJU Int.* 2000;85:264-9.
32. Soergel TM, Shott S, Heit M. Poor surgical outcomes after fascia lata allograft slings. *Int Urogynecol J Pelvic Floor Dysfunct.* 2001;12:247-53.
33. Carbone JM, Kavalier E, Hu JC, Raz S. Pubovaginal sling using cadaveric fascia and bone anchors: disappointing early results. *J Urol.* 2001;165:1605-11.
34. O'Reilly KJ, Govier FE. Intermediate term failure of pubovaginal slings using cadaveric fascia lata: a case series. *J Urol.* 2002;167:1356-8.
35. Almeida SH, Gregório E, Grando JP, Rodrigues MA, Fraga FC, Moreira HA. Pubovaginal sling using cadaveric allograft fascia for the treatment of female urinary incontinence. *Transplant Proc.* 2004;36:995-6.
36. Cabrales C, Liao B, Able C, Coba G, Farhan B. Allograft pubovaginal slings: a systematic review. *Curr Bladder Dysfunct Rep.* 2022;17:257-62.
37. Amundsen CL, Visco AG, Ruiz H, Webster GD. Outcome in 104 pubovaginal slings using freeze-dried allograft fascia lata from a single tissue bank. *Urology.* 2000;56:2-8.
38. Pianezza ML, Joffe R, Chugh T, Radomski SB. Long-term patient satisfaction following cadaveric pubovaginal sling incontinence surgery using the UDI and IIQ-7 questionnaires. *Neurourol Urodyn.* 2007;26:185-9.
39. Buck BE, Malinin TI. Human bone and tissue allografts. Preparation and safety. *Clin Orthop Relat Res.* 1994;303:8-17.