6|SIXTY SURGICAL

Peer-Reviewed Research on Human Amniotic Membrane in Gynecologic Surgery

As interest in regenerative biologics continues to grow, an increasing body of peer-reviewed literature has evaluated the use of human amniotic membrane in gynecologic surgery and tissue healing. While individual studies vary in design and level of evidence, these publications provide valuable insight into the biologic properties, safety profile, handling characteristics, and potential clinical applications of amniotic tissue.

Below is a curated selection of peer-reviewed articles that many physicians find helpful when evaluating the current evidence. Each summary is intended as a brief overview; we encourage physicians to review the complete publication and interpret the findings within the context of their own clinical judgment and patient population.

01 Evaluation of Dehydrated Human Amnion/Chorion Membrane as an Adhesion Barrier in Women Undergoing Robotic Laparoscopy

RETROSPECTIVE CLINICAL CASE SERIES

OBJECTIVE

To evaluate the feasibility and early clinical outcomes of using dehydrated human amnion/chorion membrane (dHACM) as an adhesion barrier during robotic gynecologic surgery.

STUDY HIGHLIGHTS

- 16 consecutive women underwent robotic surgery for pelvic pain, endometriosis, and adhesions.
- All patients received dHACM following adhesiolysis and excision of endometriosis.
- Fifteen patients returned for planned second-look laparoscopy.
- Fourteen of the fifteen patients demonstrated no new adhesions in the areas where the graft had been placed.
- No graft-related adverse events or major complications were reported.
- Authors reported favorable handling characteristics for robotic placement through laparoscopic trocars.

CLINICAL RELEVANCE

In women undergoing da Vinci® robotic laparoscopy, dehydrated, human amnion/chorion membrane (dHACM) demonstrated excellent handling characteristics. Second-look procedures showed no adhesions at the treatment site in 14 of 15 patients, with no major complications reported.

READ THE FULL PUBLICATION

https://www.researchgate.net/publication/309882908_Evaluation_of_Dehydrated_Human_AmnionChorion_Membrane_as_an_Adhesion_Barrier_in_Women_Undergoing_Robotic_Laparoscopy

02 Biological Properties and Surgical Applications of the Human Amniotic Membrane

COMPREHENSIVE PEER-REVIEWED REVIEW ARTICLE

OBJECTIVE

To summarize the biologic characteristics of human amniotic membrane and review its clinical applications across multiple surgical specialties.

STUDY HIGHLIGHTS

- Reviews the anti-inflammatory, anti-fibrotic, antimicrobial, and regenerative properties of human amniotic membrane.
- Describes the extracellular matrix, cytokines, growth factors, and collagen components that contribute to tissue repair.
- Discusses the membrane's low immunogenicity and biologic mechanisms involved in wound healing.
- Reviews published surgical applications in gynecology, ophthalmology, orthopedics, plastic surgery, and chronic wound management.

CLINICAL RELEVANCE

This publication provides an excellent scientific foundation for understanding why amniotic tissue has become an increasingly utilized biologic in reconstructive and regenerative surgery. Dehydrated human amniotic/chorion membrane (dHACM) has demonstrated an excellent safety profile while supporting improved surgical outcomes through its unique immunomodulatory, anti-inflammatory, anti-scarring, antimicrobial, and regenerative properties. Clinical studies across multiple surgical specialties have shown that dHACM reduces inflammation, minimize scar formation, accelerate healing, shorten recovery time, and improve functional outcomes without any significant adverse effects. These characteristics make dHACM a valuable adjunct in a wide range of surgical procedures (gynecology, gastroenterology, urology, neurosurgery, and ophthalmology).

READ THE FULL PUBLICATION

https://www.frontiersin.org/journals/bioengineering-and-biotechnology/articles/10.3389/fbioe.2022.1067480/full

03 Safety and Efficacy of Amnion Graft for Severe Intrauterine Adhesions

CLINICAL RESEARCH STUDY

OBJECTIVE

To evaluate the safety and effectiveness of human amniotic membrane as an adjunctive treatment following hysteroscopic surgery for severe intrauterine adhesions.

STUDY HIGHLIGHTS

- Evaluated women undergoing treatment for severe intrauterine adhesions.
- Investigated whether placement of amniotic membrane following surgical adhesiolysis could improve endometrial healing.
- Reported favorable safety findings.
- Demonstrated improved endometrial repair and encouraging reproductive outcomes compared with surgery alone.
- Supports the regenerative potential of amniotic tissue within gynecologic applications.

CLINICAL RELEVANCE

Although focused on intrauterine rather than pelvic adhesions, this study provides additional human clinical evidence supporting the regenerative properties of amniotic membrane in gynecology and its role in promoting tissue healing following surgery.

Amniotic membrane grafts provide a biologically active scaffold with naturally occurring growth factors, cytokines, and extracellular matrix proteins that support tissue repair and regeneration. Clinical evidence has demonstrated reduced adhesions, inflammation, fibrosis, and scar formation while maintaining an excellent safety profile.

READ THE FULL PUBLICATION

https://pmc.ncbi.nlm.nih.gov/articles/PMC7083730/

Additional Preclinical Research

Human-Derived Amniotic Membrane Is Associated with Decreased Postoperative Intraperitoneal Adhesions

PRECLINICAL (ANIMAL STUDY)

This experimental study evaluated human-derived amniotic membrane as an adhesion barrier in an animal model and demonstrated reduced postoperative intraperitoneal adhesion formation compared with controls. While preclinical, the findings provide biologic support for the anti-fibrotic and anti-adhesion properties of amniotic membrane observed in clinical practice.

READ THE FULL PUBLICATION

https://scholar.usuhs.edu/en/publications/human-derived-amniotic-membrane-is-associated-with-decreased-post/