Dehydrated Human Amnion/Chorion Membrane in Colorectal Anastomoses: A Retrospective Multi-Center Study

F. Raymond Ortega, MD, FACS; Dennis Choat, MD, FACS, FASCRS; Emery Minnard, MD; Jeffrey Cohen, MD

ACS Clinical Congress, October 22-26, 2017 in San Diego, CA

Background

Anastomotic leaks following colorectal surgery have been reported to occur at a rate of approximately 6% and represent a significant postoperative complication with devastating consequences.1

Anastomotic leaks are associated with severe post operative morbidity, prolonged hospital stay and poor outcomes, including mortality. At least one third of the mortality after colorectal surgery is attributed to anastomotic leaks.2

Although risks factors and consequences of anastomotic leaks are well documented, little information regarding use of adjunct techniques to ameliorate this problem is available.

Dehydrated Human Amnion/Chorion Membrane Allografts (dHACM)

PURION® Processed dHACM is a minimally manipulated, dehydrated, nonviable cellular amniotic membrane allograft. The dHACM allografts contain human extracellular matrix components, essential growth factors, and specialized mediating cytokines that modulate inflammation, reduce scar tissue formation, and enhance healing.3,4

The dHACM allografts are available in a variety of sizes and configurations for use in acute and chronic wounds and surgical, tendon, and nerve applications.

Previous peer-reviewed publications have described the surgical application of dHACM in patients having lumbar fusion with posterior instrumentation,5 nerve sparing radical prostatectomy procedures,6 and as an adhesion barrier in women undergoing laparoscopic surgery for endometriosis.7

Purpose

To evaluate the incidence of anastomotic leaks in patients undergoing colorectal resections with and without the use of dHACM at three surgical centers.

Methods

A retrospective systematic review was conducted on the utilization of dHACM to wrap colonic anastomoses at the time of primary surgical repair by three surgeons at three different centers.

With IRB approval, data from clinical records of patients that underwent colonic resection between 08/05/2015 and 09/30/2016 were reviewed.

Use of dHACM to wrap the anastomoses (Y/N) and occurrence of leakage (Y/N) was identified in the clinical record at baseline and at each follow-up visit.

In those receiving dHACM, either a 4 cm x 6 cm or a 2 cm x 12 cm allograft was cut as needed and applied circumferentially to the anastomosis.

The anastomotic leak rate was compared between patients whose anastomoses were wrapped with dHACM and those that were not.

Results

390 anastomoses were wrapped with dHACM and 2000 were not wrapped with dHACM.

Without dHACM, 80 of 2,000 (4.0%) of patients developed an anastomotic leak, while 4 of 390 (1.03%) anastomoses wrapped with dHACM leaked.

Conclusions

Materials that can act as a barrier, reduce scar tissue formation, modulate inflammation, and enhance healing are highly desirable to surgeons performing colorectal surgery.

Amniotic membrane has inherent properties including being immunologically privileged, and having the ability to modulate inflammation and reduce scar tissue formation. Such properties present significant therapeutic potential for use of amniotic membrane during wound healing, tissue repair, and regenerative therapy.

In this retrospective review, dHACM appears to significantly reduce the number of anastomotic leaks in colon resection surgery and may therefore reduce the prolonged hospital length of stay and/or the need for readmission.

Author Affiliations

1. MIMEDX Group Inc, Marietta, GA; Georgia Colon & Rectal Surgical Associates, Fayetteville, GA; Kenner, LA; Marietta, GA

2. DHA at the University of Georgia

3. dHACM at the University of Georgia

4. PURION® at the University of Georgia

5. References

1. Hammond, Koob, Koob, Dulemba

2. Centers

3. Tan

4. Instrumentation, Application

5. For

6. The tissue

7. Specialized

8. PURION®

9. Ameliorate

10. Anastomotic

11. One

12. Prolonged

13. Occur

14. Analysis

15. Neurovascular

16. Instrumentation

17. Regeneration

18. VR

19. Dehydrated Human Amnion/Chorion Membrane in Colorectal Anastomoses: A Retrospective Multi-Center Study

20. Lim, J, Rennert, J, Clavien, P

21. Gao, Zabek, Lim; Rennert, J

22. Of the

23. Gastrointestinal

24. Resections

25. Of

26. The

27. Anastomotic

28. Risks

29. Among

30. Incidence

31. of

32. In the

33. Current

34. Hospitalized

35. For

36. Anastomotic

37. Anastomosis

38. Anastomosis

39. Anastomosis

40. Anastomotic

41. Anastomotic

42. Anastomosis

43. Anastomotic

44. Anastomotic

45. Anastomosis

46. Anastomotic

47. Anastomotic

48. Anastomotic

49. Anastomotic

50. Anastomotic

51. Anastomotic

52. Anastomotic

53. Anastomotic

54. Anastomotic

55. Anastomotic

56. Anastomotic

57. Anastomotic

58. Anastomotic

59. Anastomotic

60. Anastomotic

61. Anastomotic

62. Anastomotic

63. Anastomotic

64. Anastomotic

65. Anastomotic

66. Anastomotic

67. Anastomotic

68. Anastomotic

69. Anastomotic

70. Anastomotic

71. Anastomotic

72. Anastomotic

73. Anastomotic

74. Anastomotic

75. Anastomotic

76. Anastomotic

77. Anastomotic

78. Anastomotic

79. Anastomotic

80. Anastomotic