



A COMPARATIVE STUDY BETWEEN SINGLE VERSUS DOUBLE LAYERED INTESTINAL ANASTOMOSIS

Surgery

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ABSTRACT

THIS IS A COMPARATIVE STUDY TO DETERMINE THE EFFICACY OF SINGLE LAYER INTESTINAL ANASTOMOSIS IN COMPARISON WITH DOUBLE LAYER INTESTINAL ANASTOMOSIS. THIS PROSPECTIVE STUDY HAS BEEN CONDUCTED IN GOVERNMENT DHARMAPURI MEDICAL COLLEGE HOSPITAL BETWEEN 2013-2016.

KEYWORDS:

INTRODUCTION: GASTROINTESTINAL ANASTOMOSIS HAS BEEN EXISTED INTEREST IN OUR DAY TO DAY SURGICAL PRACTICE AND AIM OF ANASTOMOSIS IS TO MAKE A SOUND ALIGNMENT OF BOWEL THROUGH WHICH THE CONTENTS WILL PASS IN AS EARLY AS POSSIBLE. IN DOUBLE LAYERED CLOSURE WHERE MUCOSA AND SERO-MUSCULAR LAYERS ARE SUTURED SEPARATELY THROUGH HEMOSTATIC SUTURES. IN SINGLE LAYER TECHNIQUE FULL THICKNESS OF BOWEL WALL IS APPROXIMATED. THIS COMPARATIVE STUDY ENDEAVOURS TO COMPARE OUTCOME OF SINGLE LAYER VERSUS DOUBLE LAYER INTESTINAL ANASTOMOSIS IN SMALL AND LARGE BOWEL IN TERMS OF DURATION REQUIRED TO PERFORM INTESTINAL ANASTOMOSIS, POST OPERATIVE COMPLICATIONS.

AIMS AND OBJECTIVES:

- 1) TO COMPARE DURATION TO PERFORM ANASTOMOSIS.
- 2) TO COMPARE DURATION OF HOSPITAL STAY
- 3) TO COMPARE POST OPERATIVE COMPLICATIONS LIKE ANASTOMOTIC LEAK.

METHODS AND MATERIALS:

50 PATIENTS WERE SELECTED FOR THIS STUDY WHO WERE ADMITTED WITH VARIOUS CLINICAL CONDITIONS REQUIRING RESECTION AND ANASTOMOSIS OF SMALL & LARGE BOWEL IN GOVERNMENT DHARMAPURI MEDICAL COLLEGE HOSPITAL.

INCLUSION CRITERIA:

ALL PATIENTS AGED MORE THAN 18 YRS
PATIENTS UNDERGOING RESECTION AND ANASTOMOSIS OF SMALL BOWEL AND LARGE BOWEL AT OUR HOSPITAL FOR CAUSES LIKE SMALL BOWEL GANGRENE, STRANGULATED HERNIA WITH BOWEL LOOP AS CONTENT

SMALL AND LARGE BOWEL TUMOURS, INTESTINAL ISCHEMIA.

EXCLUSION CRITERIA:

PATIENTS WITH ASSOCIATED COMORBID DISEASES LIKE SEPSIS, CARDIOVASCULAR DISEASE, DERANGED LIVER FUNCTION.
PATIENTS NOT WILLING FOR SURGERY.

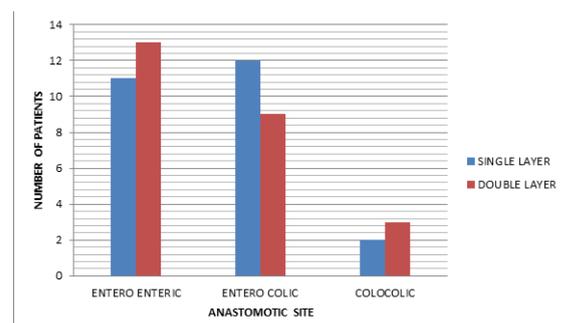
DISEASE GROUP AND PATIENTS

DISEASE GROUP	NO OF CASES	N(%)
CAECAL MASS(GIST)	2	4%
CARCINOMA ASCENDING COLON	5	10%
CARCINOMA CAECUM	1	2%
CAECAL PERFORATION	1	2%
CARCINOMA TRANSVERSE COLON	3	6%
CARCINOMA DESCENDING COLON	3	6%
CARCINOMA RECTOSIGMOID	1	2%
ILEOCAECAL TB	7	14%
JEJUNAL STRICTURE	2	4%
MULTIPLE ILEAL PERFORATION	2	4%
SMA SYNDROME	2	4%
TERMINAL ILEAL STRICTURE	13	26%
TERMINAL ILEAL TB STRICTURE	4	8%
STRANGULATED INGUINAL HERNIA	4	8%

IN THIS STUDY OF FIFTY CASES IN BOTH GROUPS, TERMINAL ILEAL STRICTURES WAS DIAGNOSED IN MAXIMUM NUMBER OF PATIENTS i.e 13(26%) OF CASES

ANASTOMOTIC SITE

ANASTOMOTIC SITE	SINGLE LAYER(%)	DOUBLE LAYER(%)
ENTERO ENTERIC	11(44)	13(52)
ENTERO COLIC	12(48)	9(36)
COLO-COLIC	2(8)	3(12)
TOTAL	25(100)	25(100)

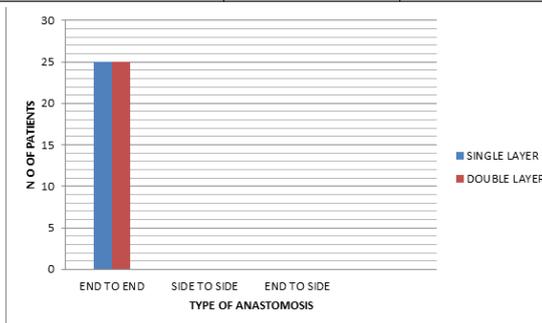


THE MAXIMUM NUMBER OF ANASTOMOSIS IN SINGLE LAYER ANASTOMOSIS WERE PERFORMED AT ENTERO-COLIC LEVEL IN 12(48%) PTS, NEXT AT ENTERO-ENTERIC SITE IN 11(44%) PTS AND LEAST AT COLO-COLIC SITE IN 2(8%) OF PTS.

IN DOUBLE LAYER MAXIMUM ANASTOMOSIS IS AT ENTERO-ENTERIC LEVEL IN 13(52%) OF PTS, NEXT IS ENTERO -COLIC IN 9(36%) OF PTS AND FOLLOWED BY COLO-COLIC SITE IN 3(12%) OF PTS.

TYPE OF ANASTOMOSIS

TYPE OF ANASTOMOSIS	SINGLE LAYER	DOUBLE LAYER
END TO END	25(100%)	25(100%)
SIDE TO SIDE	0	0
END TO SIDE	0	0
TOTAL	25	25



IN BOTH TYPE OF ANASTOMOSIS ONLY END TO END ANASTOMOSIS HAS BEEN DONE.

DURATION OF ANASTOMOSIS

DURATION OF ANASTOMOSIS IN MINUTES	SINGLE LAYER(%)	DOUBLE LAYER(%)
10-15	1(4)	0
16-20	22(88)	0
21-25	2(8)	1(4)
26-30	0	19(76)
31-35	0	5(20)
TOTAL	25(100)	25(100)

MAXIMUM NUMBER IN SINGLE LAYER GROUP IS 22(88%) BETWEEN 16-20 MINUTES WHEREAS IN DOUBLE LAYER MAXIMUM NUMBER WAS 19(76%) BETWEEN 26-30 MINUTES, AND THE P VALUE <0.001 AND HIGHLY SIGNIFICANT

COMPARISON OF MEAN DURATION OF TWO ANASTOMOTIC GROUPS

GROUPS	RANGE	MEAN=SD	MEAN DIFFERENCE	T* VALUE	P VALUE
	DURATION IN MINUTES				
SINGLE LAYER	14-22	19.04+-1.60	10.16	19.6	0.000
DOUBLE LAYER	25-35	28.8+-2.02			

MEAN DIFFERENCE IS FOUND TO BE 10.16 AND P VALUE IS <0.005 AND IS HIGHLY SIGNIFICANT.

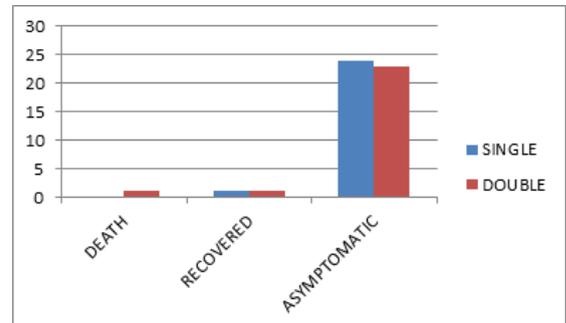
COMPLICATION-ANASTOMOTIC LEAK

COMPLICATION	SINGLE LAYER(%)	DOUBLE LAYER(%)
ANASTOMOTIC LEAK	1(2)	2(4)



FINAL OUTCOME

OUTCOME	SINGLE LAYER(%)	DOUBLE LAYER(%)
DEATH	0(0)	1(4)
RECOVERED	1(4)	1(4)
ASYMPTOMATIC	24(96)	23(92)



NOT SIGNIFICANT

COMPARISON OF MEAN DURATION OF HOSPITAL STAY

GROUPS	RANGE	MEAN=SD	MEAN DIFFERENCE	T* VALUE	P VALUE
	DURATION IN DAYS				
SINGLE LAYER	5-14	7.32+-1.72	0.6	1.002	0.322
DOUBLE LAYER	5-15	7.92+-2.44			

NOT SIGNIFICANT

DISCUSSION:

THE PRESENT STUDY ASSESSED THE EFFICACY AND SAFETY OF SINGLE LAYERED ANASTOMOSIS IN COMPARISON WITH DOUBLE LAYERED ANASTOMOSIS AFTER INTESTINAL RESECTION AND ANASTOMOSIS. THE STUDY INCLUDED TWO GROUPS SINGLE LAYER AND DOUBLE LAYER, EACH GROUP HAD 25 CASES ALTOGETHER 50 CASES. CASES WERE ALLOTTED TO EITHER GROUP ALTERNATIVELY., REQUIRING SINGLE LAYER ANASTOMOSIS AND DOUBLE LAYER ANASTOMOSIS FOR VARIOUS CLINICAL CONDITIONS OF SMALL AND LARGE BOWEL. ANASTOMOSIS WAS DONE AT DIFFERENT LEVELS OF INTESTINE AND DEPENDING UP ON THE POSITION OF VISCERA. THE EFFICACY OF BOTH GROUPS WERE COMPARED IN TERMS OF DURATION REQUIRED TO PERFORM SINGLE AND DOUBLE LAYERED INTESTINAL ANASTOMOSIS, POST OPERATIVE COMPLICATIONS LIKE ANASTOMOTIC LEAK, THE OUTCOME AND DURATION OF HOSPITAL STAY IN EITHER OF THEM.. THE FINAL RESULT IS HIGHLY SIGNIFICANT IN THE COMPARISON OF DURATION OF ANASTOMOSIS BETWEEN TWO GROUPS.

CONCLUSION:

THIS PROSPECTIVE COMPARATIVE STUDY INCLUDED FIFTY CASES OF VARIOUS CLINICAL CONDITIONS OF SMALL AND LARGE BOWEL REQUIRING RESECTION AND ANASTOMOSIS. THE STUDY HAD TWO GROUPS, SINGLE LAYER AND DOUBLE LAYER COMPRISING TWENTY FIVE CASES IN EACH GROUP. EACH GROUP WAS EVALUATED AND COMPARED WITH RESPECT TO DURATION REQUIRED, ANASTOMOTIC LEAK IN SINGLE AND DOUBLE LAYERED INTESTINAL ANASTOMOSIS, OUTCOME

ASSOCIATED AND THE DURATION OF HOSPITAL STAY IN SINGLE VS DOUBLE LAYERED BOWEL ANASTOMOSIS.

THOUGH A LARGE NUMBER OF PATIENTS NEED TO BE STUDIED TO DO A DOGMATIC CONCLUSION, BASED ON THE RESULTS OBTAINED IN THE PRESENT STUDY FOLLOWING CONCLUSIONS CAN BE DRAWN:

- DURATION REQUIRED TO PERFORM A SINGLE LAYER INTESTINAL ANASTOMOSIS IS SIGNIFICANTLY LESSER WHEN COMPARED TO DOUBLE LAYER.
- THERE IS NO SIGNIFICANT DIFFERENCE IN ANASTOMOTIC LEAK BETWEEN TWO GROUPS.
- THERE IS NO SIGNIFICANT DIFFERENCE IN DURATION OF HOSPITAL STAY IN SINGLE VS DOUBLE LAYERED ANASTOMOSIS.

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