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CLOSURE OF COLOSTOMY

GRADE 4 (SEVERE)

THESE STEPS COVER

CLOSURE OF TRANSVERSE COLOSTOMY

CLOSURE OF ILIAC COLOSTOMY

CLOSURE OF CAECOSTOMY

CLOSURE OF PAUL-MICKULICZ OPERATION

CLOSURE OF LOOP ILEOSTOMY

CLOSURE OF A DIVIDED COLOSTOMY

INTRAPERITONEAL CLOSURE

REPAIR OF STOMA HERNIA WITH STOMA CLOSURE

THESE STEPS DO NOT COVER

CLOSURE OF A COLOSTOMY AND A RECTAL MUCOUS FISTULA

CLOSURE OF A HARTMANN'S OPERATION

EXTRAPERITONEAL CLOSURE

SECTIONS

STEPS

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QUICK STEPS First Steps

SURGEON

STEP
NUMBER

1 PRELIMINARIES - READ ON

2 CHECK YOU HAVE THE CORRECT
PATIENT

CHECK THE BOWEL IS PATENT
DISTAL TO THE STOMA

CHECK THE BOWEL HAS BEEN
WASHED OUT PROXIMAL AND
DISTAL TO THE STOMA

CHECK ANTIBIOTICS HAVE BEEN GIVEN
Metronidazole 1G. intravenously.

Cefuroxime 1.5G intravenously.

4 CHECK THERE IS NO OTHER PROCEDURE
TO DO

5 CHECK THERE IS A DIATHERMY
PAD

ANAESTHESIA
General.

POSITION
Supine.

STANCE
Stand on the side of the stoma.

Have your one assistant opposite you.

Have access from the nipples to mid-thigh.

SKIN PREPARATION - READ ON

HAVE ANY STOMA BAGS REMOVED

HAVE ANY STOMA AND SURROUNDING
SKIN CLEANED
Use 2 Chlorhexidine soaked gauze packs.

Have the stoma squeezed to remove any faecal
matter.

CLEAN THE SKIN
Clean the skin from the xiphisternum to the
symphysis pubis, and from one iliac crest to
the other.

Use two swabs on sticks with 0.5%
chlorhexidene in 70% propanol, followed by
one to dry off.

TOWELLING UP - READ ON

PLACE A LOWER TOWEL UP TO
10CM FROM THE STOMA

PLACE AN UPPER TOWEL DOWN
TO 10CM FROM THE STOMA

PLACE A LATERAL TOWEL TO
15CM FROM THE STOMA

PLACE A MEDIAL TOWEL TO
15CM FROM THE STOMA

13 FIX THE TOWELS TO THE SKIN
Use 4 towel clips.

CHECK THE DIATHERMY IS WORKING

SKIN INCISION - READ ON

Use a scalpel.

Make a transverse ellipse incision.

Make the ellipse extend 5cm beyond lateral
ends of the stoma.

Cut the ellipse within 0.3mm of the upper
and lower limits of the stoma

For a divided colostomy, include the 2
stomas in the skin ellipse.

DEEPENING THE INCISION - READ ON

HOLD THE SKIN ELLIPSE VERTICALLY
Use 2 Littlewoods forceps as retractors.

Fix a swab over the stoma, gripped by the
Littlewoods forceps to, prevent faecal
contamination.

DISSECT INTO THE SUBCUTANEOUS FAT
Use dissecting scissors.

Dissect vertically through the subcutaneous
fat to the rectus sheath and external oblique
aponeurosis.

Look for a plane between the bowel wall and
the subcutaneous fat.

Completely free this plane around the bowel
wall.

Look for a plane between the bowel wall and
the external oblique aponeurosis and rectus
sheath.

Make sure you do not damage any bowel that

may be found in unusual sites in an unorthodox stoma.

Look out for omentum or loops of bowel in any parastomal hernia.

MOBILISING THE BOWEL - READ ON
Continue using dissecting scissors.

FIND THE PERITONEAL CAVITY

Free the bowel completely around this plane.

Carefully divide adhesions in any part of this dissection.

If you open the side of the bowel, repair it with interrupted 2/0 Vicryl (Ethicon W9136) followed by interrupted 2/0 silk (Ethicon W333).

Beware of dense adhesions where the lateral peritoneum may have been stitched to the bowel when the colostomy was made.

Beware of small bowel hernias around the stoma and in the peritoneal spaces lateral to the stoma.

Make sure the loop of stoma bowel is freed all round, 5 cms. deep to the peritoneum.

If there is a divided colostomy, dissect out each limb separately.

BRING OUT THE LOOP OF STOMA BOWEL
Bring the loop out onto the skin with at least 5 cm. limbs of healthy bowel visible.

If it won't come out, check the bowel is free.

If the loop is still too short, widen the abdominal incision so that you can safely do the closure of the stoma inside the peritoneal cavity.

If there is a divided colostomy, bring out each limb of bowel separately.

PLACE TWO LARGE PACKS AROUND THE STOMA
This will prevent soiling of the wound.

CUT THE SKIN OFF THE STOMA
Use scissors.

Aim for a stoma with healthy bleeding edges.

TIE OFF ANY MESENTERIC BLEEDERS
Use ties of 2/0 Vicryl (Ethicon W9025).

REMOVAL ALL UNHEALTHY STOMA TISSUE
Unhealthy tissue is inflamed, fibrosed,
stenosed, distorted, or damaged by dissection.

Formally remove a section of bowel if
necessary to get healthy bowel for the
closure.

CHECK THE PLANNED CLOSURE
Push the stomal edges together.

The edges should flop together.

The closure will probably leak if the edges
need to be pulled together.

Free the bowel more thoroughly or even resect
the section of bowel to get the edges
flopping together.

You are particularly likely to have
difficulty in mobilising a Paul-Mickulicz
stoma.

FOR AN ANASTOMOSIS OF
COMPLETELY DIVIDED BOWEL
GO TO STEP *** ()

FOR A CLOSURE OF ONLY
PARTLY DIVIDED BOWEL - READ ON

NON-CRUSH CLAMP THE BOWEL LOOP
Use a Doyens clamp across the bowel loop 4cm.
away from the stomal edge.

Use 2 clicks.

Use 2 clamps to control a divided stoma.

MOP OUT THE BOWEL CONTENTS
Use swabs on sticks until the inside of the
clamped off bowel is clean.

START THE INNER LAYER OF
THE CLOSURE
Use continuous 2/0 Vicryl (Ethicon W9136).

Make a transverse closure of all layers of
the bowel, starting at one side.

Tie the first knot with 3 throws.

Cut the loose end 10mm. long.

Continue the closure with 5mm. bites across
to the opposite side.

Tie the final knot with 3 throws.

Cut the loose end 10mm. long

REMOVE THE DOYEN'S CLAMP
GO TO STEP *** (START THE ANTERIOR LAYER OF
THE OUTER WALL OF THE ANASTOMOSIS)

CLOSURE OF COMPLETELY
DIVIDED BOWEL - READ ON

FREE 3CM OF EACH LIMB
OF BOWEL
Clip, cut and ligate with 2/0 Vicryl (Ethicon
W9025) all vessels on the bowel wall.

CLAMP EACH
LIMB OF BOWEL
Place a Doyen's clamp across each limb of
bowel (2 clicks).

PLACE THE 2 BOWEL ENDS
SIDE BY SIDE
Swing the Doyen's clamps parallel to one
another.

If the bowel is not mobile enough, free off
the mesentery from the posterior abdominal
wall.

If there is any doubt about the mobility of
the bowel, consider opening up the abdomen
for a complete mobilisation of the bowel.

Call a more experienced surgeon.

ISOLATE THE STOMA(S)
Use 2 large packs.

START THE ANASTOMOSIS

START WITH THE POSTEROR
WALL OF THE OUTER LAYER
Use interrupted sero-muscular stitches of 2.0
silk (Ethicon W333).

Place the stiches 5 mm apart, 10mm. from the
cut edges.

Stitch the adjacent half circumference of
each piece of bowel.

Start with a stitch at one end of the
posterior wall.

Clip this first stitch with an artery forcep
for use as a retractor.

Next place a stitch into the other end of the
posterior wall.

Clip this second stitch with an artery forcep as a retractor.

Stitch the intervening posterior layer of the outer wall with silk stitches 5mm. apart.

Cut these intervening stitches 3mm. long.

Dab with a swab on a stick as needed to keep the operating field clear.

START THE POSTERIOR WALL
OF THE INNER LAYER

Use an all-layer stitch of 2/0 Vicryl (Ethicon W9636).

Start with a stitch through the middle of the adjacent walls of the ileum and colon.

Place the stitch 5mm. from the edges of the bowel and tie with 3 throws.

Tuck one needle out of the way under the drapes.

CONTINUE THE POSTERIOR WALL
OF THE INNER LAYER

Run the 2.0 Vicryl stitch through all layers of the bowel wall with 5mm. bites.

Stitch from the first tie to the right end of the back wall and continue round to form the inner layer of the front wall for 1cm.

Be delicate.

Get your assistant to maintain a 50gm. pull.

Fix the Vicryl with a lock stitch.

Control the bedding of each loop of the stitch onto the bowel edges yourself with a dissecting forcep.

Do not let your assistant do it.

RETURN TO THE OTHER END OF
THE INNER LAYER STITCH

With the other needle, complete the left side of the back wall of the inner layer using continuous 5mm. bites.

Stitch round the left end and onto the anterior wall to meet the lock stitch.

Tie the two ends of the Vicryl together with 3 throws.

Cut the ends 10 mms long.

REMOVE BOTH DOYEN'S CLAMPS

START THE ANTERIOR PART
OF THE OUTER LAYER OF
THE ANASTOMOSIS

Use interrupted stitches of 2/0 silk (Ethicon
W333) to infold the anterior Vicryl layer.

Take 5mm. bites, 5mm. apart.

If the bowel ends are under tension, the
anastomosis will fail.

The bowel should be quite floppy.

The stitches should not cut through.

Redo the anastomosis:
if there is tension,
tearing,
ischaemia,
haematoma.

You may need to re-mobilise the bowel, before
you can safely redo the anastomosis.
GO BACK TO STEP*** ()

Make sure the
(For a complete anastomosis use a double
needled 2/0 Vicryl stitch (W9636).

Swing the Doyen's clamps parallel to on
another.

Make sure small bowel has not intervened
between the bowel limbs.

Make sure that there is no twist in bowel
limbs.

Start with a stitch through the middle of
the adjacent walls of the bowel.

Place the stitch 5mm. from the edges of the
bowel and tie with 3 throws.

Run the stitch through all layers of the
bowel wall with 5mm. bites.

Stitch from the first tie to the right end of
the back wall and continue round to form the
inner layer of the front wall for 1cm.

Be delicate.

Get your assistant to maintain a 50gm. pull.

Fix the Vicryl with a lock stitch.

Control the bedding of each loop of the

stitch onto the bowel edges yourself with a dissecting forcep.

Do not let your assistant do it.

Return to the middle of the inner layer stitching.

With the other needle, complete the left side of the back wall of the inner layer using continuous 5mm. bites.

Stitch round the left end and onto the anterior wall to meet the lock stitch.

Tie the two ends of the Vicryl together - 3 throws.

Cut the ends 10 mms long.)

REMOVE THE DOYEN'S CLAMP(S)

START THE OUTER LAYER OF THE CLOSURE

Use interrupted stitches of 2/0 silk (Ethicon W333) to infold the inner Vicryl layer.

Take 5mm. bites, 5mm. apart.

Insert extra silk stitches to cover over any visible inner suture line.

If the bowel ends are under tension, the closure will leak.

The bowel limbs should be quite floppy.

The stitches should not cut through.

Redo the closure:
if there is tension,
tearing,
ischaemia, or
haematoma.

You may need to re-mobilise the bowel, before you can safely redo the closure.

GO BACK TO STEP*** ()

CHECK THE LUMEN

Pinch through the lumen with index finger and thumb to check the lumen is at least 2cm. diameter.

If not, redo the closure.

GO BACK TO STEP*** ()

REPLACE THE BOWEL

Push it back into the peritoneal cavity.

EXCISE ANY PARASTOMAL HERNIA

Use stitch scissors.

Cut away the thinned tissues of the hernia until you reach healthy abdominal wall.

PICK UP THE PERITONEUM
AND MUSCLE LAYER

Use 4 Moynihan's cholecystectomy forceps , 1 on each side of the wound and 1 on each end.

Get your assistant to lift his side of the wound with the forceps.

CLOSE THE DEFECT

Use a continuous layer of No.1 nylon (Ethicon 749).

Make a transverse closure.

Tie the ends of the nylon with 5 throws.

Take 1cm. bites, 1cm. apart.

Cut the ends of the nylon 10mm. long.

Check all the time that you are avoiding needle damage to the structures inside the abdomen.

If the peritoneum will not close or the single stitches are tearing, take 4 bites and pull the stitches through en masse.

If you are still unable to close, call a more experienced surgeon.

INSERT A SECOND REINFORCING LAYER

Use another layer of continuous no.1 nylon (Ethicon W749).

Make a transverse reinforcement.

Tie the end with 5 throws.

Hold the loose end in the line of the wound with an artery so that the next stitches will bury the knot.

Take 1cm. bites, 1cm. apart.

Tie the final end with 5 throws.

Bury the ends of the final knot back in the wound.

Cut the ends of the knot where they protrude from the closed rectus sheath.

CHECK HAEMOSTASIS IN THE FAT

PUT 1G AMPICILLIN POWDER

IN THE SUBCUTANEOUS FAT

Use a 10sec. burst of Povidone iodine spray
if there is an ampicillin hypersensitivity.

CLOSE THE SUBCUTANEOUS FAT

Use continuous no.1 Vicryl (Ethicon W9251).

Cut the ends 3mm. long.

CHECK THE SWAB, NEEDLE,
AND INSTRUMENT COUNTS

CHECK THERE IS NO OTHER
PROCEDURE TO DO

CLOSE THE SKIN

Use continuous 3/0 Vicryl (Ethicon W9890).

Make a 5 throw knot at the end of the Vicryl
to act as an anchor when burying the first
stitch.

Take six 5mm. bites before pulling on the
Vicryl to close the skin edges.

Bury the final end with a loop stitch.

SPRAY THE WOUND

Use an acrylic spray (Nobecutine).

DRESS THE WOUND

Use a compliant dressing (Mepore).

FINAL TOUCHES

FILL IN OPERATION DETAILS

FILL IN SURGICAL AUDIT FORM

PRESCRIBE CALCIUM HEPARIN

Give 5000 units b.d. subcutaneously until the
patient leaves hospital.

WRITE A LETTER TO THE GENERAL PRACTITIONER

END

EQUIPMENT LIST

GENERAL SET

10 JOLLS ARTERY FORCEPS

10 MOSQUITO ARTERY FORCEPS

5 MORRISON TISSUE FORCEPS

2 BABCOCKS TISSUE FORCEPS

3 ALLIS TISSUE FORCEPS

1 MAYO NEEDLE HOLDER

1 LAWRENCE NEEDLE HOLDER

1 LEEDS NON-TOOTHED DISSECTING
FORCEP

1 GILLIES DISSECTING FORCEP
TOOTHED

1 GILLES DISECTING FORCEP
NON-TOOTHED

2 METZENBAUM DISSECTING SCISSORS
STRAIGHT AND CURVED

1 MAYO CURVED SCISSOR 7 1/2"

2 MAYO SCISSORS - STRAIGHT

1 MACDONALD DISSECTOR

1 VOLKMANN'S SPOON

2 GILLIES SKIN HOOKS

2 NO 4 KNIFE HANDLES - BARD PARKER

2 NO 3 KNIFE HANDLES - BARD PARKER

1 SINUS FORCEP

1 BRODIE PROBE

1 BRODIE PROBE DIRECTOR

2 DOUBLE SHARP HOOKS

2 CATS PAWS

5 TOWEL CLIPS

1 X-ACTION CLIP

5 SPONGE HOLDERS

2 MEDIUM LANGENBECK RETRACTORS

2 SMALL LANGENBECK RETRACTORS

1 COMPLETE DIATHERMY FORCEP

1 NON-TOOTHED DIATHERMY FORCEP

10 X 5" STRAIGHT ARTERY FORCEPS

10 X 7" CURVED ARTERY FORCEPS

5 X CHOLECYSTECTOMY CLAMPS - MOYNIHAN

5 X DUFFIELD ROSE ARTERY FORCEP
3 X GINE O'SHAUGNESSEY FORCEPS
1 X B.P. KNIFE HANDLE NO 7
2 ANEURYSM NEEDLE
2 SUCKER ENDS
2 MORRIS RETRACTORS
3 DEVERS RETRACTORS
2 LARGE KELLY RETRACTORS
2 SMALL KELLY RETRACTORS
1 McKEOWN S.R. RETRACTOR
1 LARGE FINOCHIETTI S.R. RETRACTOR
2 PAIRS LONG DISSECTING SCISSORS
2 PAIRS LONG DISSECTIN FORCEPS
TOOTHED AND NONE TOOTHED
2 LONG NEEDLE HOLDERS
4 TETRA CLIPS AND 2 TOWEL CLIPS

HAYES INTESTINAL CLAMPS
CRUSHING AND NON CRUSHING

CURVED AND STRAIGHT INTESTINAL
CLAMPS -DOYENS

SCHOEMAKERS INTESTINAL CLAMPS

MATERIALS

LIGATURES W9025 AND W9027

PERITONEUM W749

FAT W9251

SKIN W9890

ANASTOMOSIS W9136
W333

DRAIN W799