

USE OF OMENTUM IN UROLOGIC SURGERY

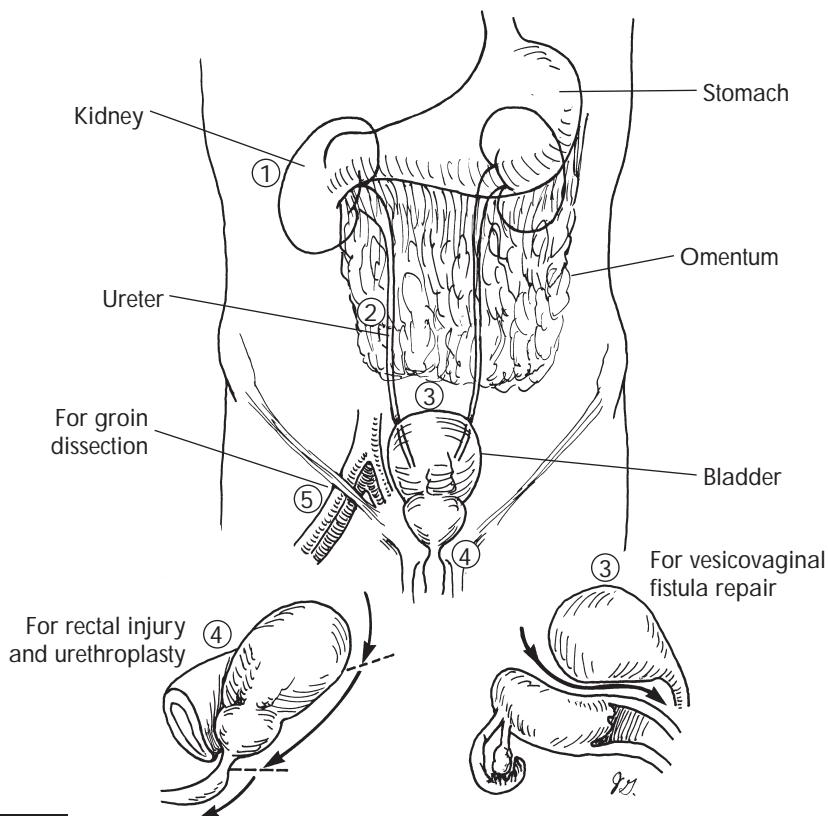
FIG. 8-1. The omentum is used as an interposition between two layers of healing tissues. It can cover the entire urinary tract all the way down to the perineum.

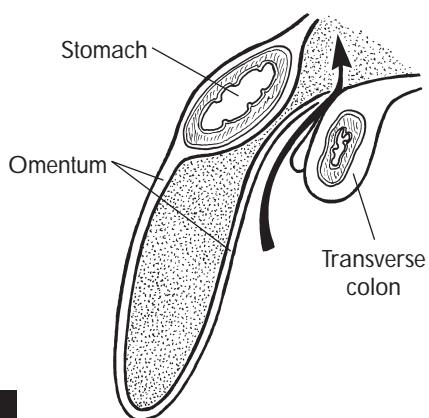
The omentum can be placed in areas where there is extracellular fluid collections, where there is excessive dead space, where a barrier is needed to prevent tissue reactions such as in retroperitoneal fibrosis or on suture lines, and where neovascularity is needed to reconstitute organ blood supply.

MOBILIZATION OF OMENTUM

Initially the surgeon must estimate the length of an omental segment needed to cover the desired area. At times the necessary mobilization can be accomplished without taking the omentum off the transverse colon. In the majority of cases, however, the surgeon must perform full mobilization for the desired reconstruction.

Sites for Omental Interposition



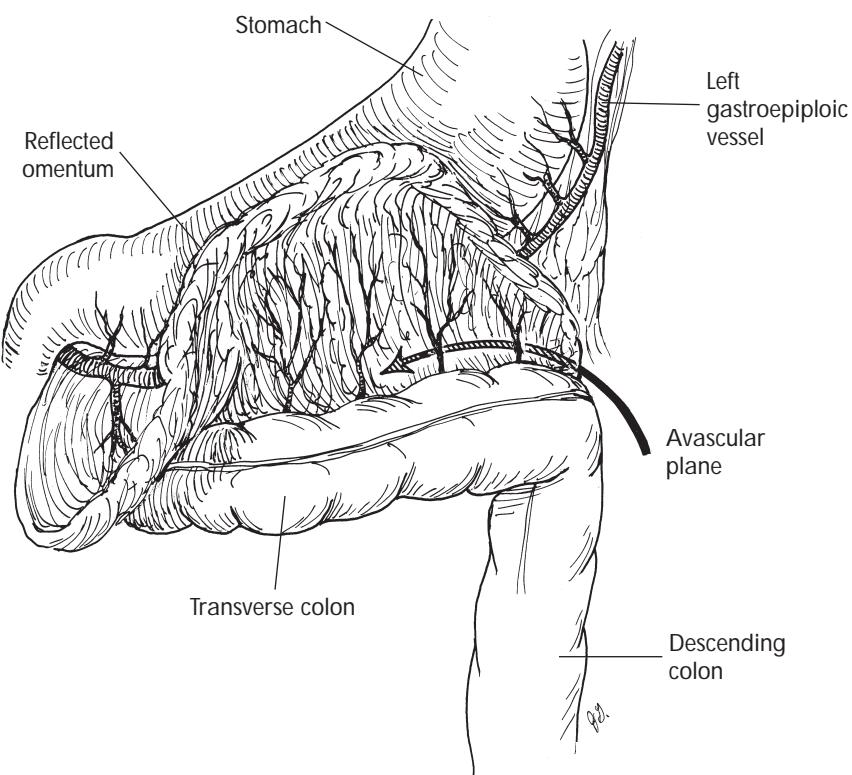
Cross-sectional View

8-2

DISSECTION OF OMENTUM FROM TRANSVERSE COLON

FIGS. 8-2 AND 8-3. By lifting the entire omentum cephalad, the surgeon finds an avascular plane between the left omentum and the left transverse colon.

FIG. 8-4. Once started, the surgeon can pass the index and middle fingers between the anterior surface of the pancreas and the omentum. The dissection proceeds from the left to the right.



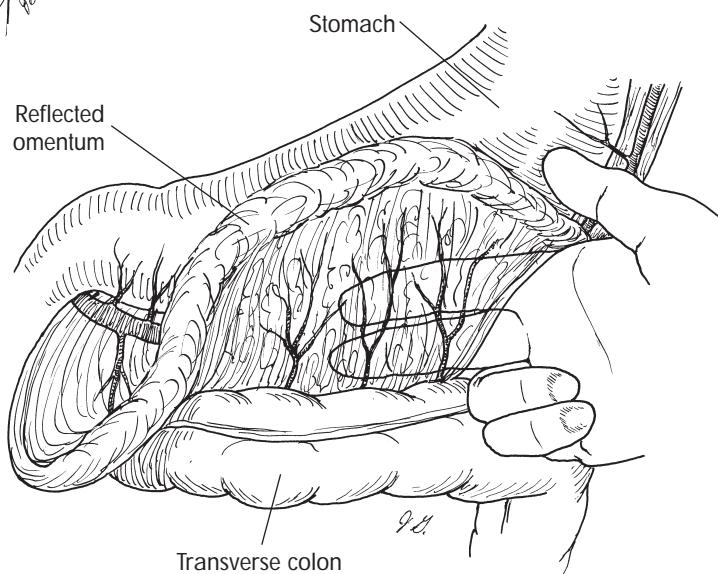
8-3

DISSECTION OF OMENTUM FROM STOMACH

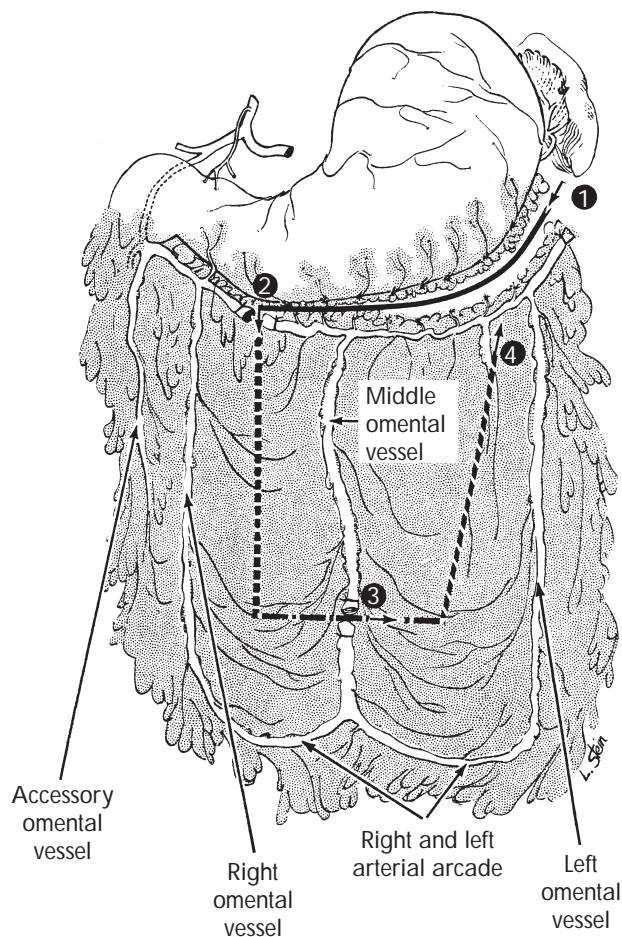
FIG. 8-5. When dissecting the omentum from the stomach, the surgeon must preserve the omental vasculature. The blood supply to the omentum consists of the right and left gastroepiploic vessels, which course toward one another to form the gastroepiploic arch. The black line shows the route by which the omentum can be divided without injury to the vascular arch.

FIG. 8-6. In approximately 10% of patients, however, the right and left gastroepiploic arteries do not anastomose to form this arch¹⁻³ (**A**). Often the right gastroepiploic artery vascularizes more than two thirds of the omental apron (**B**). Although we have used both the left and the right gastroepiploic arteries, mobilization based on the left gastroepiploic pedicle may result in ischemia if the gastroepiploic arch is incomplete. In general, the right gastroepiploic artery is preferred as the pedicle.

The omentum should never be divided across the omental apron below the gastroepiploic arch because such an incision would divide the vertical branches and further compromise the already poor arcade communication (**C** and **D**).

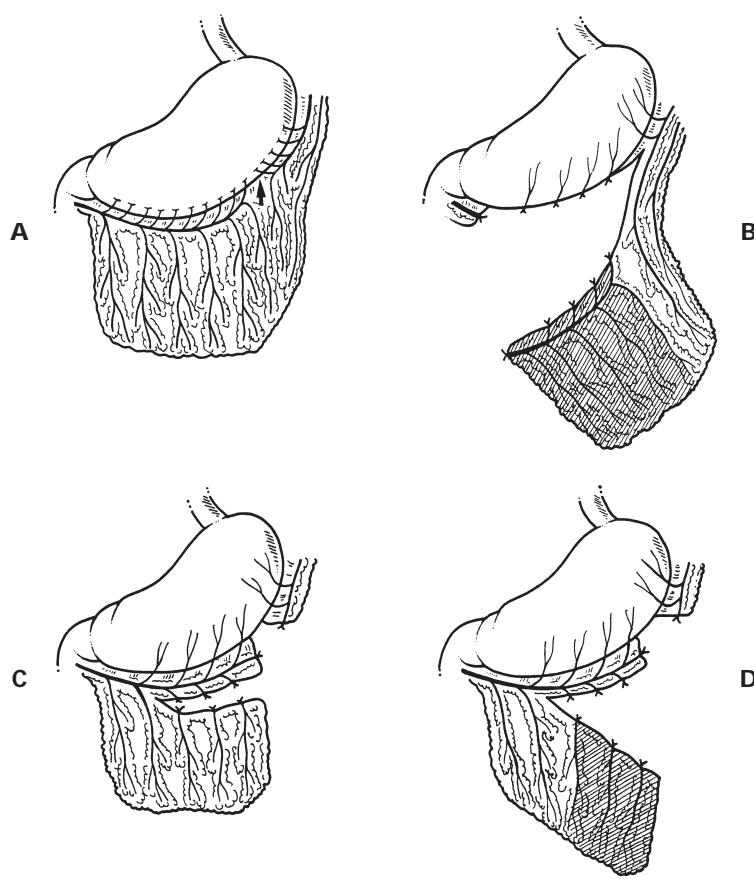


8-4



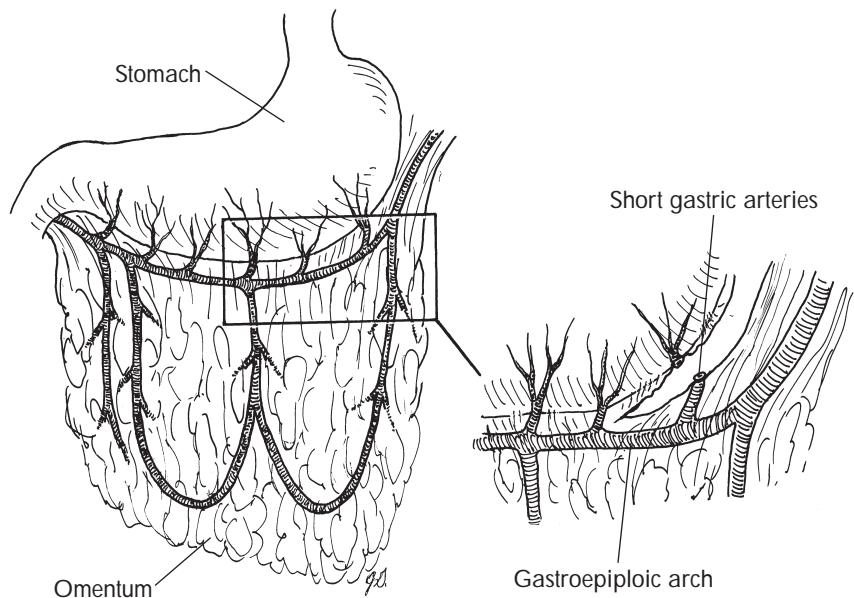
From Alday ES, Goldsmith HS: *Surg Gynecol Obstet* 135:103, 1972.

8-5

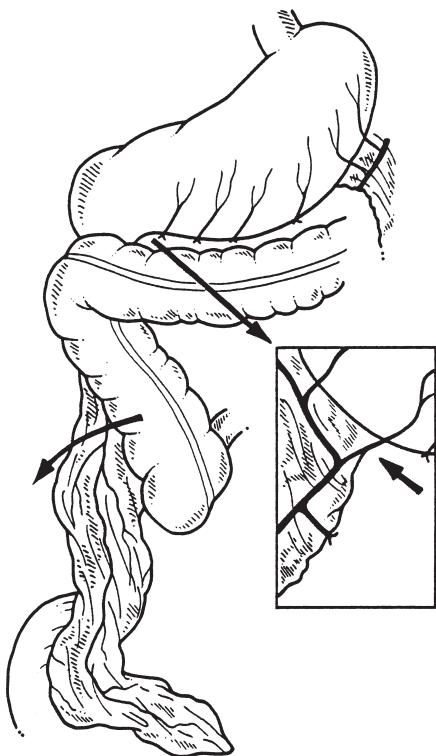


From Webster G et al: *Reconstructive urology*, London, 1993, Blackwell.

8-6



8-7



From Webster G et al: *Reconstructive urology*, London, 1993, Blackwell.

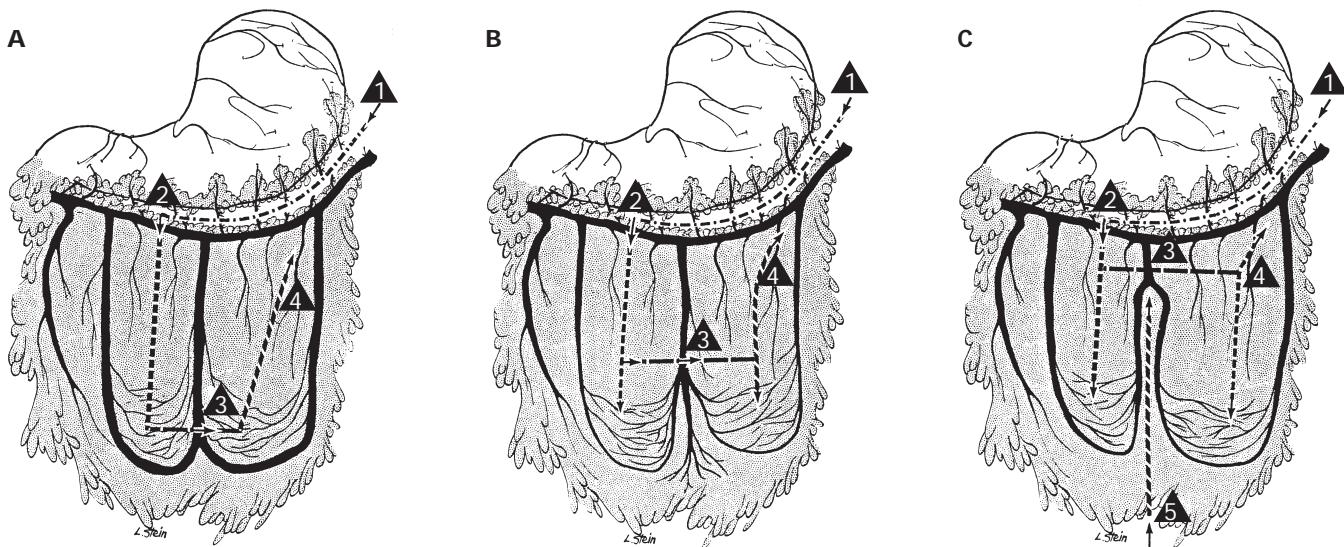
FIG. 8-7. After dividing either one of the gastroepiploic arteries, the surgeon divides the short gastric arteries to free the omentum from the stomach. It is important to divide the short gastric arteries *favoring the stomach side* to preserve the vascular arcade of the omentum.

FIG. 8-8. Mobilization of the right gastroepiploic vessel from the stomach should be extended to its gastroduodenal origin to avoid placing excessive tension on the pedicle and rupturing the last undivided branch.

Although it is tedious, the sur-

geon must take every precaution to avoid any small arterial bleeding within the omentum because such bleeding could lead to a large hematoma. Not only can the arcade be injured but also the surgeon will have difficulty assessing the viability of the mobilized omentum. We prefer to perform this maneuver using manual tying and hemostat clamps instead of the LDS stapler (Autosuture, U.S. Surgical, Norwalk, Conn.) going from the left short gastric arteries to the right. In this way, if there is an injury to the vascular arcade, the right side is still preserved for use.

8-8



From Alday ES, Goldsmith HS: *Surg Gynecol Obstet* 135:103, 1972.

8-9

VARIATIONS IN OMENTAL VASCULATURE

As has been discussed, there are variations in omental vasculature, thus requiring a unique dissection for each patient. By shining a light source from behind the omentum (translumination) in a darkened room, the surgeon will be able to define each variation.

FIG. 8-9. In general, there are four branches from the vascular arcade, which join at the distal portion of the omentum. These branches join the right and left omental arteries, thus forming right and left arterial arcades. Alday and Goldsmith⁴ and Kiricuta and Goldstein⁵ have noted five major variations of these arcades, which are based on the level of bifurcation or the absence of the middle omental artery. The dashed lines and numbers represent the steps in the omental mobilization procedure.

Type 1: The middle omental artery bifurcates near the lower end

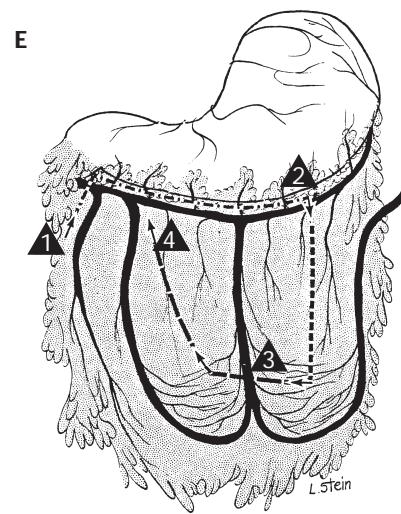
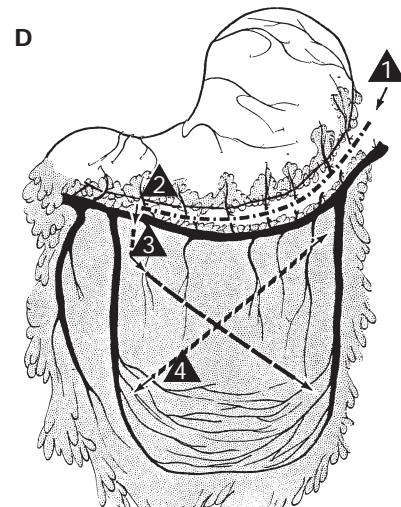
of the omental apron (**A**). This vascular pattern is the *most common*.

Type 2: The middle omental artery bifurcates or trifurcates midway between the gastroepiploic arch and the lower end of the omental apron (**B**).

Type 3: The middle omental artery bifurcates or trifurcates 2 to 3 cm from gastroepiploic arch (**C**).

Type 4: The right and left omental arteries join to form an omental vascular arch without the presence of the middle omental artery (**D**).

Type 5: The terminal branch of the splenic artery is not part of the gastroepiploic arch but instead develops into the left omental artery (**E**). The right gastroepiploic artery diminishes in caliber as it traverses the lower portion of the greater curvature of the stomach and never develops communication with the short gastric vessels. The middle omental artery arises from the right gastroepiploic artery.



PLACEMENT AND FIXATION OF OMENTAL PEDICLE

FIG. 8-10. The simplest maneuver is to divide the line of Toldt and reflect the colon medially while fixing the omentum to the retroperitoneal space.

The surgeon should check that the gastroepiploic artery is not under tension or at a severe angle to the rest of the omental apron.

By mobilizing either the left or right omentum, the surgeon can reach the area of the kidney, adrenal gland, and ureter. If a longer segment of omentum is needed, it is best to use the right gastroepiploic artery as the pedicle because of its lower position.

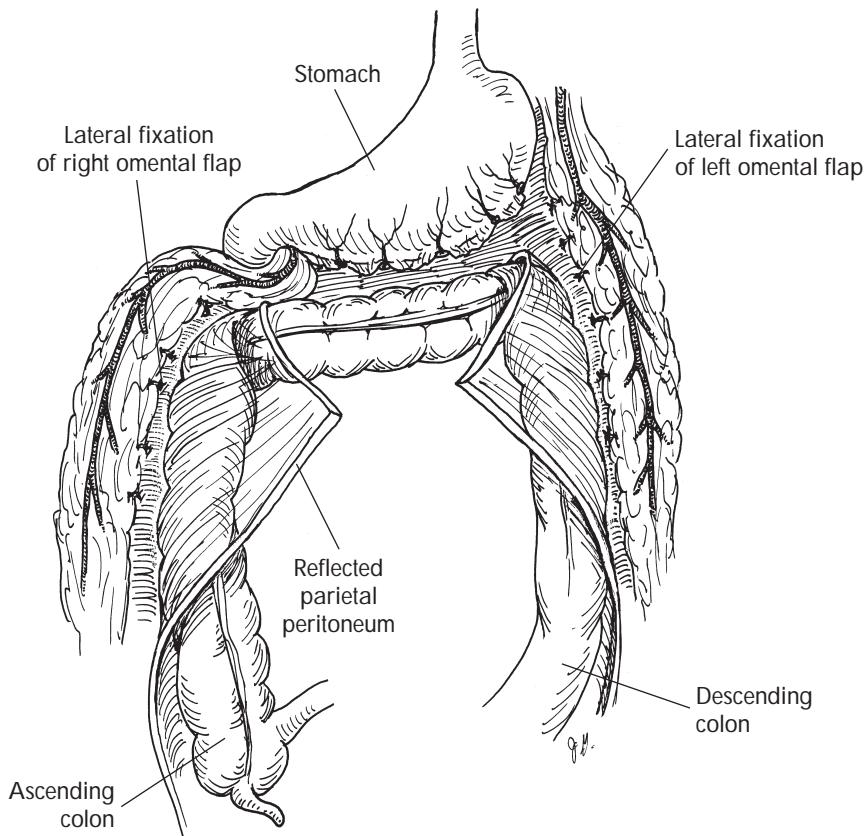
If the omentum is placed within the peritoneal cavity to cover a reconstructed bladder such as a continent pouch, the surgeon must take precautions to fix the

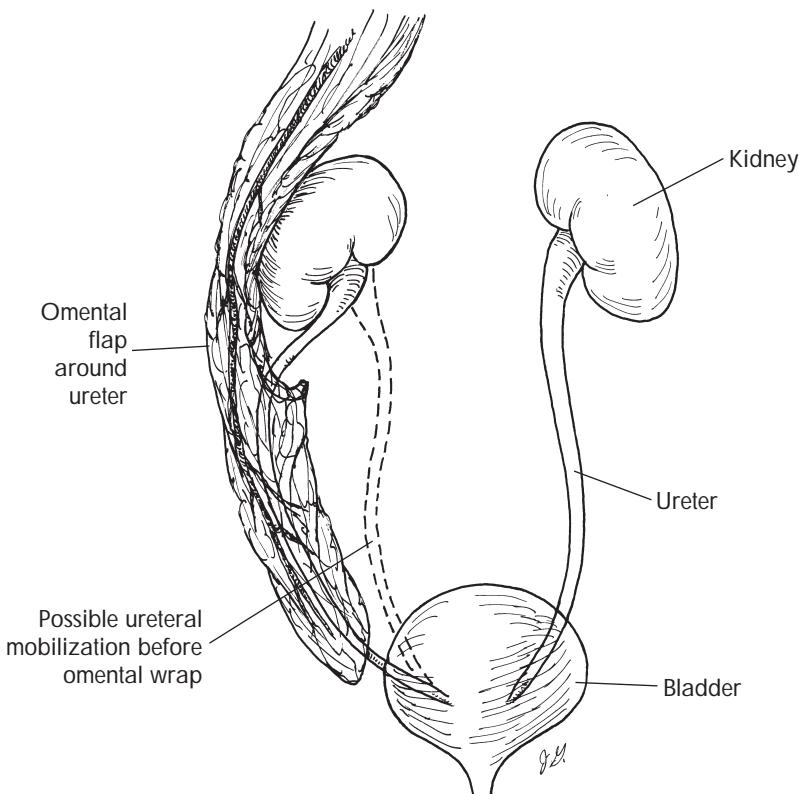
omentum in such a way that no bowel herniations are possible.

FIG. 8-11. With the omentum already in a retroperitoneal position, it is relatively simple to interpose it over the entire urinary tract from the kidney to the ureter and down to the bladder. There are situations in which the ureter may need to be mobilized and freed first before a tension-free omental wrap or interposition is possible.⁶

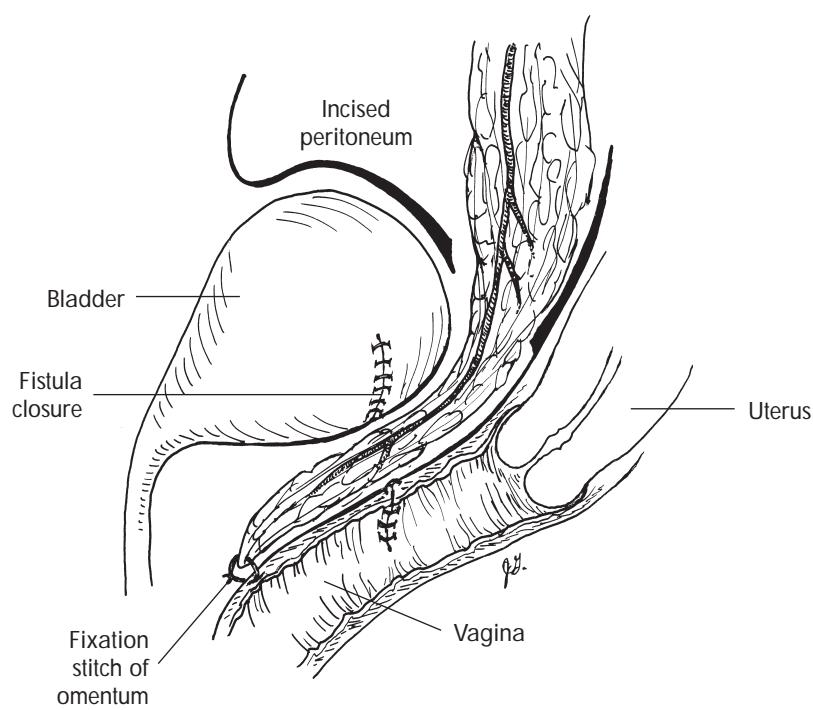
FIG. 8-12. For vesicovaginal fistula repairs, the surgeon can incise the peritoneum and develop a dissection plane between the bladder and the anterior vagina for the omental fixation.

For inadvertent rectal lacerations during radical prostatectomies, the cul-de-sac is incised and the omentum is fixed over the rectal repair (see p. 267).





8-11



8-12

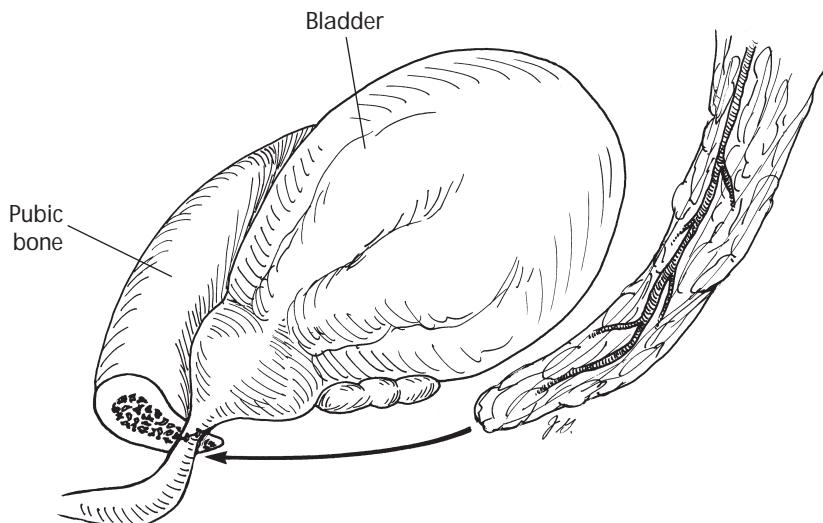
FIG. 8-13. For posterior urethroplasties, the surgeon can use a similar dissection by incising the peritoneal cul-de-sac and developing a dissection plane between the bladder/prostate gland and the rectum as is done in a radical cystectomy procedure (see p. 268).

As an alternative, the surgeon can develop a space from the ret-

roperitoneum and then under the “retroperitoneal pockets” into the retropubic spaces (see pp. 69 and 170).

If there is a need to cover a raw area after a groin dissection, the surgeon may tunnel the omentum over the inguinal ligament but within the subcutaneous tissue to reach the groin.

**Omental Interposition at Partial Pubectomy
Site for Urethroplasty Repair and After Rectal Injury**



8-13

**K E Y
P O I N T S**

- The omental length needed is estimated. There are situations in which the omentum can easily stretch to the area concerned without further mobilization, such as when used as cover for a continent pouch.
- All possibilities and potentials of bowel entrapment and subsequent bowel obstruction must be considered when the omentum is fixed to a desired region.
- The omentum is mobilized from the stomach and transverse colon.
- The omental vascular arcade must be preserved on the omentum side. The left short gastric arteries are divided first and then the right side is approached.
- The right gastroepiploic artery is preferred over the left gastroepiploic artery for use as the vascular pedicle. There should be no tension on the pedicle.
- The lateral colon is mobilized for fixation of the omental pedicle in the retroperitoneal space.
- The various omental lengthening maneuvers are considered.
- The omentum can be mobilized to wrap around the ureter from the kidney to the lower end of the ureter.
- For vesicovaginal fistulas, the surgeon can place the omentum from the intraperitoneal position by developing a dissection plane through the peritoneum and between the bladder and vagina.
- For vesicorectal fistulas or difficult membranous urethroplasty repairs, the surgeon can use an intraperitoneal approach by developing a dissection plane through the peritoneal cul-de-sac between the rectum and the vagina or the rectum and the bladder/prostate gland.

**P O T E N T I A L
P R O B L E M S**

- *Mobilization of omentum from stomach leads to hematoma:* Apply finger compression to the area → inspect for and ligate bleeders to prevent larger hematoma
- *Mobilization of omentum with injury of its vascular arcade:* Wait and inspect the omentum later → use the right gastroepiploic artery as the main pedicle if at all possible → transluminate the omentum to select the best alternative
- *After omental fixation, there is possible risk of bowel herniation and future bowel obstruction:* Place and fix the omentum in a lateral position or even in a retroperitoneal position

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