
بسم الله الرحمن الرحيم
In The Name Of Allah, The Most Beneficent, The Most Merciful

Sigmoidovesical fistula:- Surgical Protocol

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SIGMOIDOVESICAL FISTULA:- SURGICAL PROTOCOL

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Original Research

Surgical protocol and outcome for sigmoidovesical fistula secondary to diverticular disease of the left colon: A retrospective cohort study

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ABSTRACT

Background: Diverticular disease of sigmoid colon can rarely be complicated by a connective track to urinary bladder. Pneumaturia and fecaluria are the pathognomonic symptoms. Resection surgery is the preferred treatment to overcome the renal sequellae of the disease. The purpose of this study is to propose a guiding classification to help general surgeons during surgical management of diverticular disease complicated by sigmoidovesical fistula (SVF).

Patients and methods: The data of 40 cases with colovesical fistula due to diverticular disease of sigmoid colon were retrospectively analyzed. Clinicopathological variables, imaging reports, types of treatment and patient outcome were evaluated.

Results: There were 36 men (90%) and four women (10%) in which the ages ranged from 32 to 79 with a mean of 58.1 years. Pneumaturia was the most common presenting symptom in 38 cases (95%) followed by urinary symptoms in 35 cases (87.5%) then fecaluria in 33 cases (82.5%). 37 patients underwent surgical resection while three patients were in poor general condition to withstand major resection. 16 patients underwent one stage resection and anastomosis, 16 patients were managed by two stage procedure and the remaining 5 patients were treated by three stages operation.

Conclusions: Adequately performed CT followed by colonoscopy is the mainstay for diagnosis. Type 1 SVF should be treated in a single stage by complete resection and immediate anastomosis without a stoma. Type 2 cases are best managed in two stages while those with type 3 SVF are emergently managed by three stage procedure. Treatment of type 4 should be individualized.

Introduction:

- *Colovesical fistula (CVF) is an abnormal communication with two orifices situated in the epithelial surfaces of the colon and the urinary bladder.*

Introduction:

- *Classical symptoms of colovesical fistula (CVF) are pneumaturia and fecaluria.*
- *Multiple pathologies have been implicated including cancer (colon, urinary, endometrial, ovarian), crohn's disease, radiotherapy and other rare causes*

Introduction:

- *diverticular disease occurring in only 2-4% of patients and prevalent in 50% of those above 70 years of age*
- *It is believed that the inflammatory reaction of diverticulitis is propagated to vesical wall followed by central necrosis or perforation*

Patients and methods:

- *The medical files of 63 cases with CVF managed in the Gastrointestinal Surgery Department of our Institution, over six years (from January 2012 to December 2017) were reviewed retrospectively.*

Patients and methods:

- *The inclusion criteria encompassed all patients with a fistulous track between the sigmoid colon and the urinary bladder due to diverticular disease.*

Patients and methods:

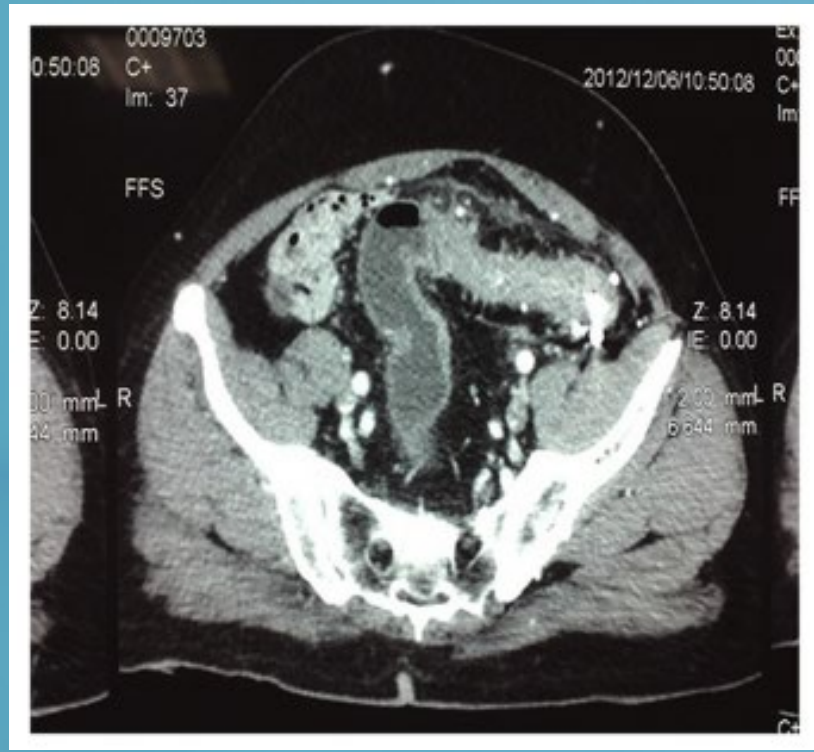
- *Patient underwent different imaging modalities in their pathway to the final diagnosis*

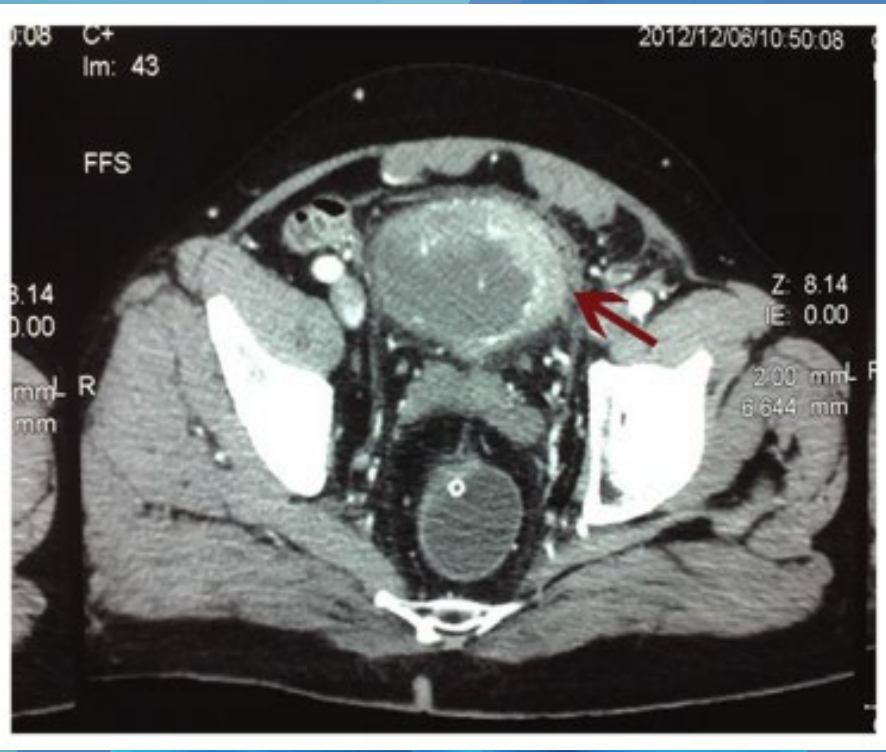
Patients and methods:

- *Ultrasound of abdomen/pelvis showing abnormal findings in the pelvis e.g. amalgamated mass or collection,*
- *Prompted computed tomography (CT) ascending cystography via foley catheter with intravenous contrast of abdomen/pelvis that usually clinched the diagnosis.*

Patients and methods:

- *The main CT criteria for diagnosis was the existence of gas/contrast escaping from the higher pressure colon intravesically .*





Patients and methods:

- *opposing walls of the colon and urinary bladder were almost always thickened and adherent and intramural abscesses could be detected .*

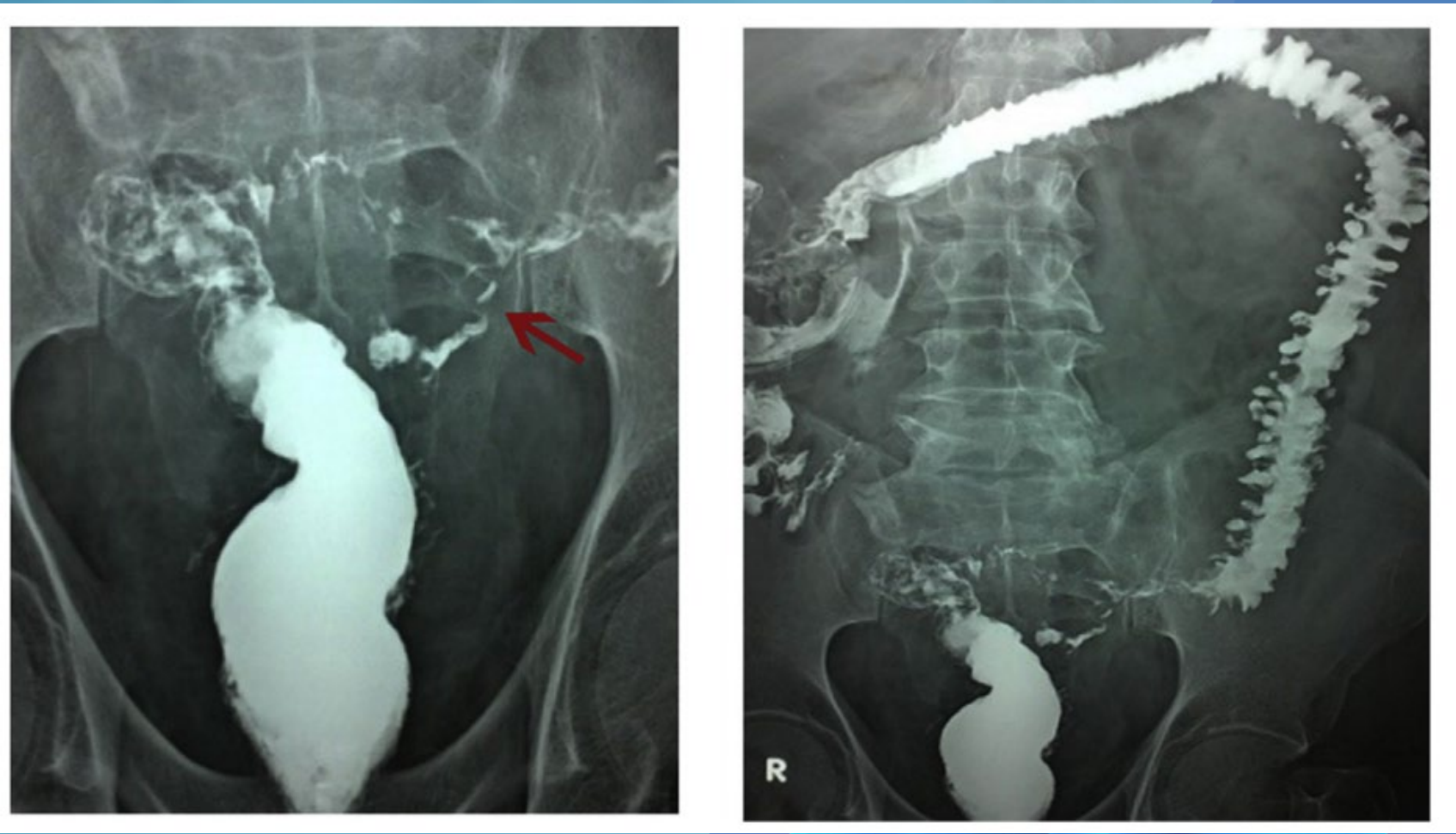
Patients and methods:

- *Colonoscopy with biopsies from the thickened colon wall in addition to detection of colonic stricture or narrowing that is considered a risk factor for recurrence.*

- *Cystoscopy was performed to see the clues of the fistulation from the other side.*

Patients and methods:

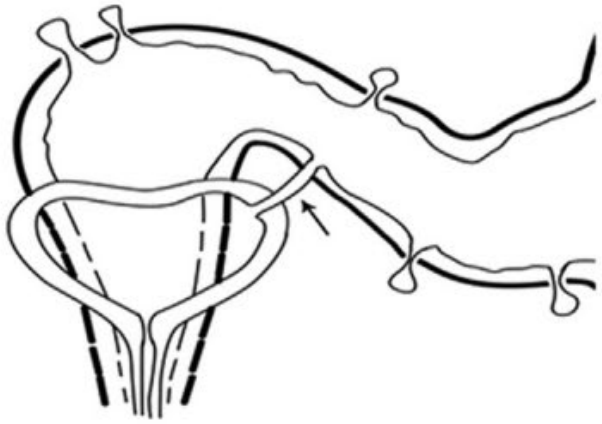
- *Barium enema and ascending cystography were seldom done.*

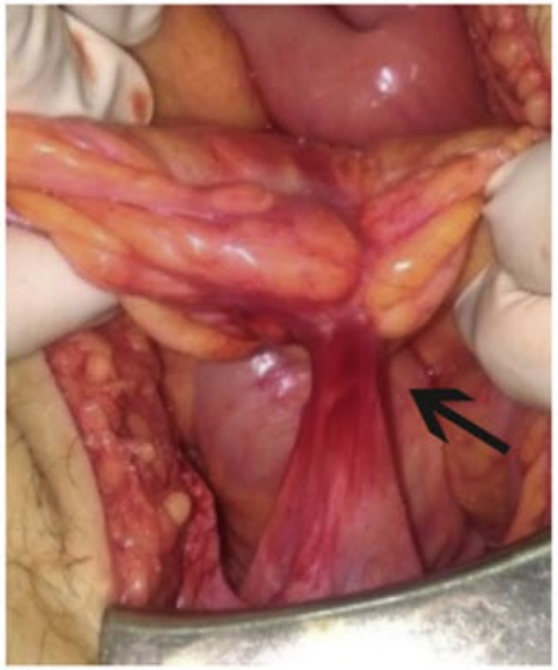


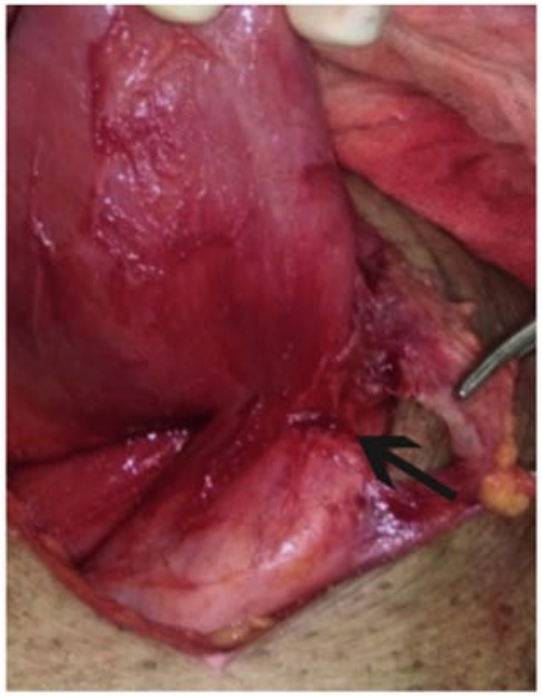
Patients and methods:

Cases were classified into 4 types:

I. *Type one for simple sigmoidovesical fistula (SVF) resulting from a single perforated diverticulum.*



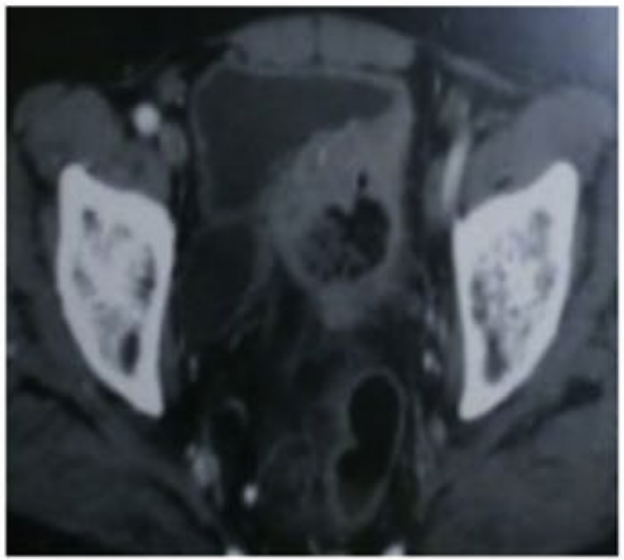




Patients and methods:

Cases were classified into 4 types:

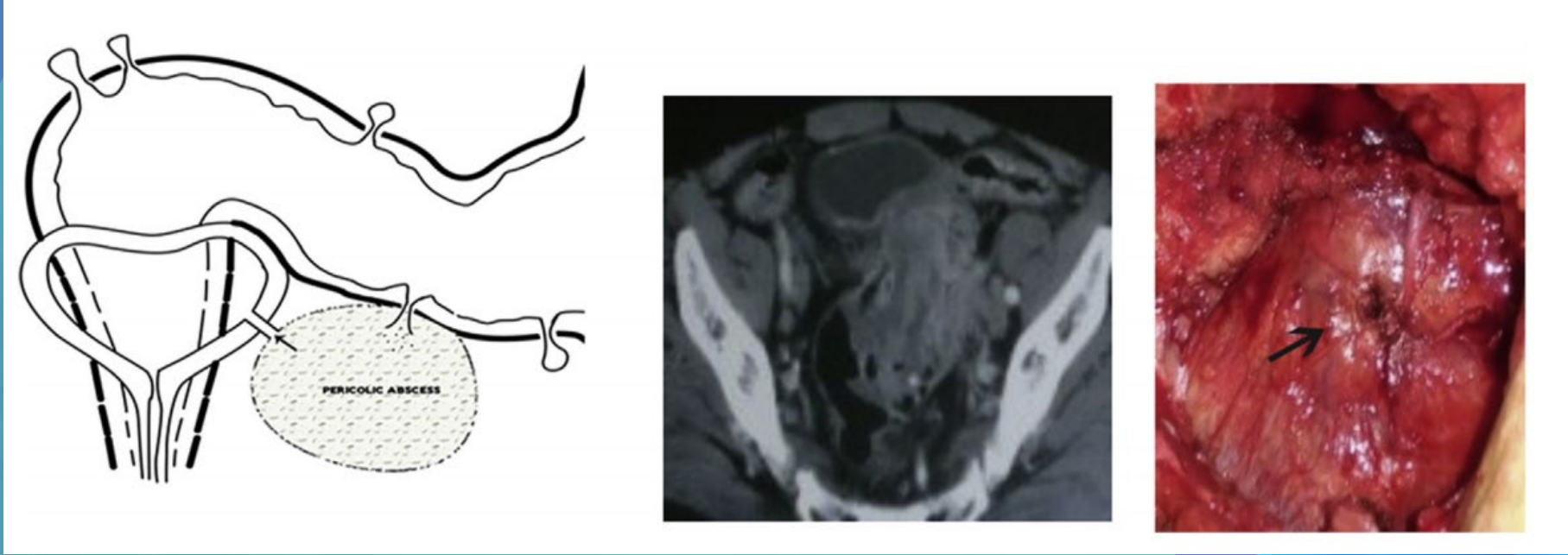
II. Type 2 for fistulas associated with inflammatory colon mass .



Patients and methods:

Cases were classified into 4 types:

III. Type 3 for those fistulas in a complicated diverticulitis with pericolic or pelvic abscess after failure of percutaneous drainage.



Patients and methods:

Cases were classified into 4 types:

IV. Type 4 or recurrent SVF occurring after surgery for CVF or diverticular disease in the past.

Patients and methods:

- *Surgical approach typically involved adhesiolysis, identification of left ureter, mobilization of descending colon and splenic flexure, dissection beginning from normal area to develop an anatomical plan between the sigmoid colon and urinary bladder and division of the fistulous track*

Patients and methods:

- *The tiny opening in the urinary bladder was revealed by saline or methylene blue distension test through the urethral catheter.*

Patients and methods:

- *The bladder defect was repaired, by conservative approach (debridement, double-layered closure) with or without omental interposition or by a more aggressive partial cystectomy entailing wide excision of urinary bladder wall.*

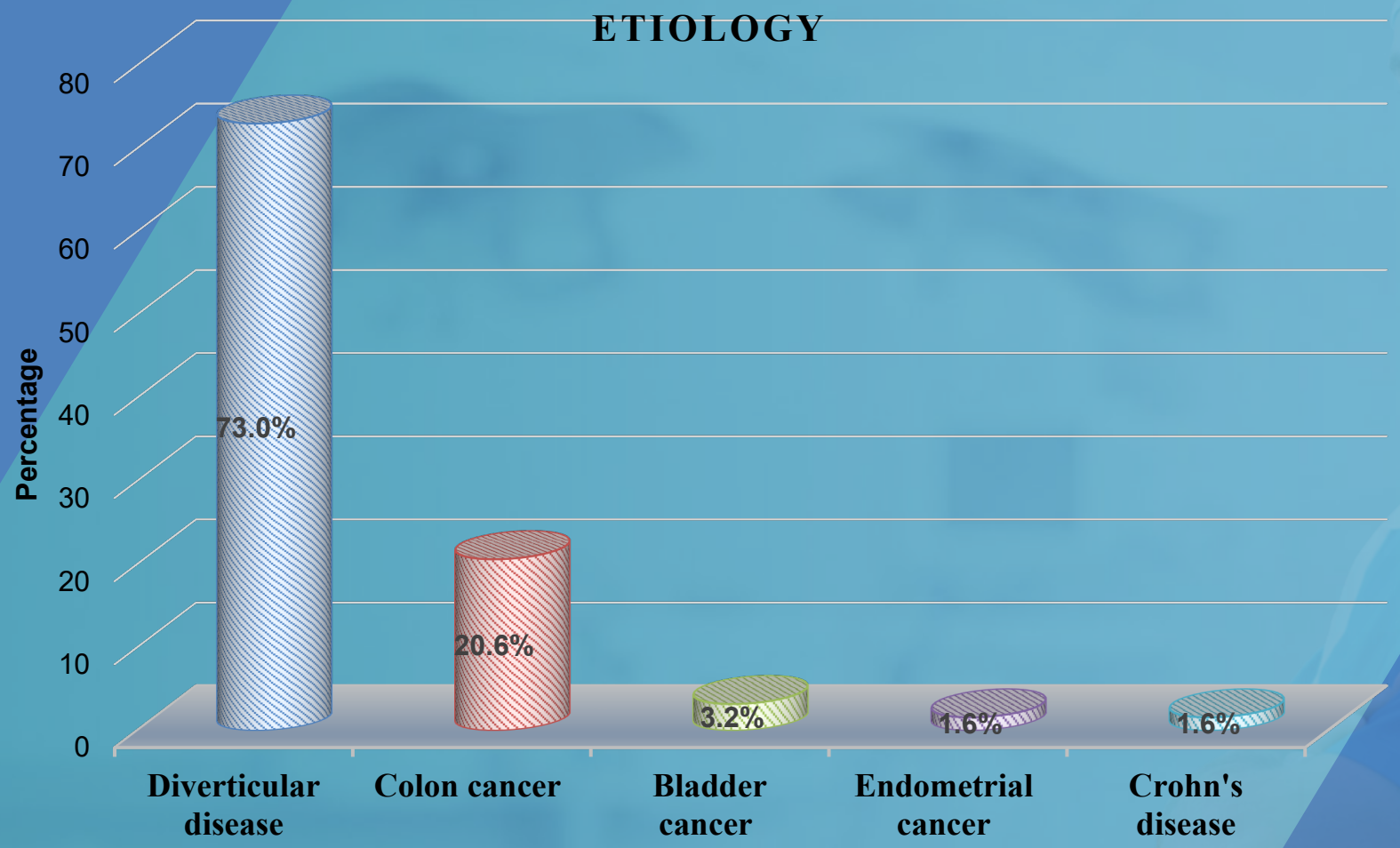
Patients and methods:

- *the sigmoid colon, the chief pathological site, was resected till the peritoneal reflection and primary, end to end or end or side to end, hand sewn or stapled colorectal tension free anastomosis was performed without a proximal stoma as first option following the rule of one stage procedure.*

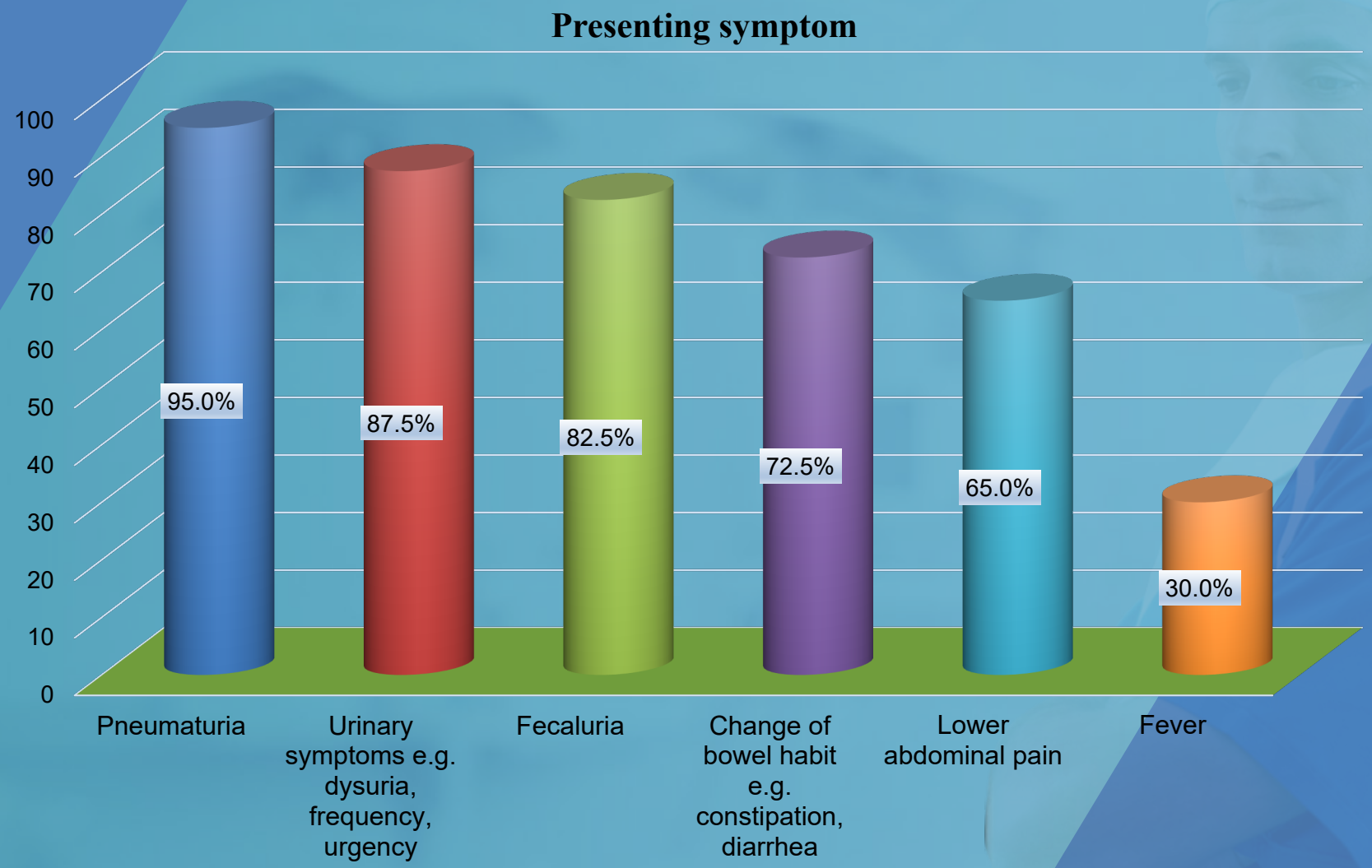
Patients and methods:

- *If local colonic conditions were unfavorable e.g. excessive pus, doubtful vascularity, tension, then a two stage procedure (Hartmann procedure or sigmoid resection, primary anastomosis and a proximal diverting stoma) or a three-stage method (proximal stoma followed by sigmoid resection then later taking down of stoma) was conducted.*

Results

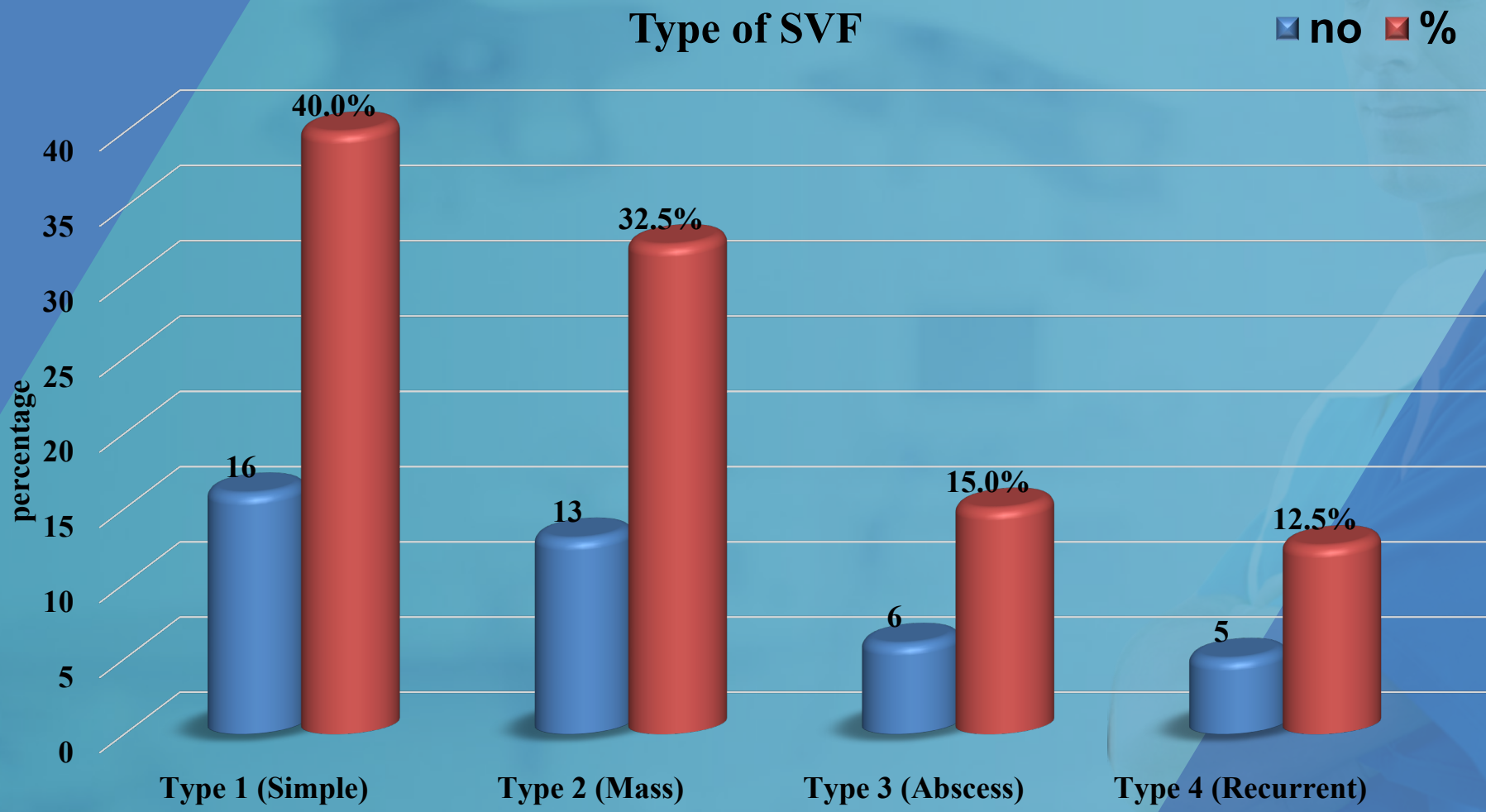

ETIOLOGY
Percentage
80
70
60
50
40
30
20
10
0
73.0%
20.6%
3.2%
1.6%
1.6%
Diverticular disease
Colon cancer
Bladder cancer
Endometrial cancer
Crohn's disease

Results


Presenting symptom
100
90
80
70
60
50
40
30
20
10
0
95.0%
87.5%
82.5%
72.5%
65.0%
30.0%
Pneumaturia
Urinary symptoms e.g. dysuria, frequency, urgency
Fecaluria
Change of bowel habit e.g. constipation, diarrhea
Lower abdominal pain
Fever

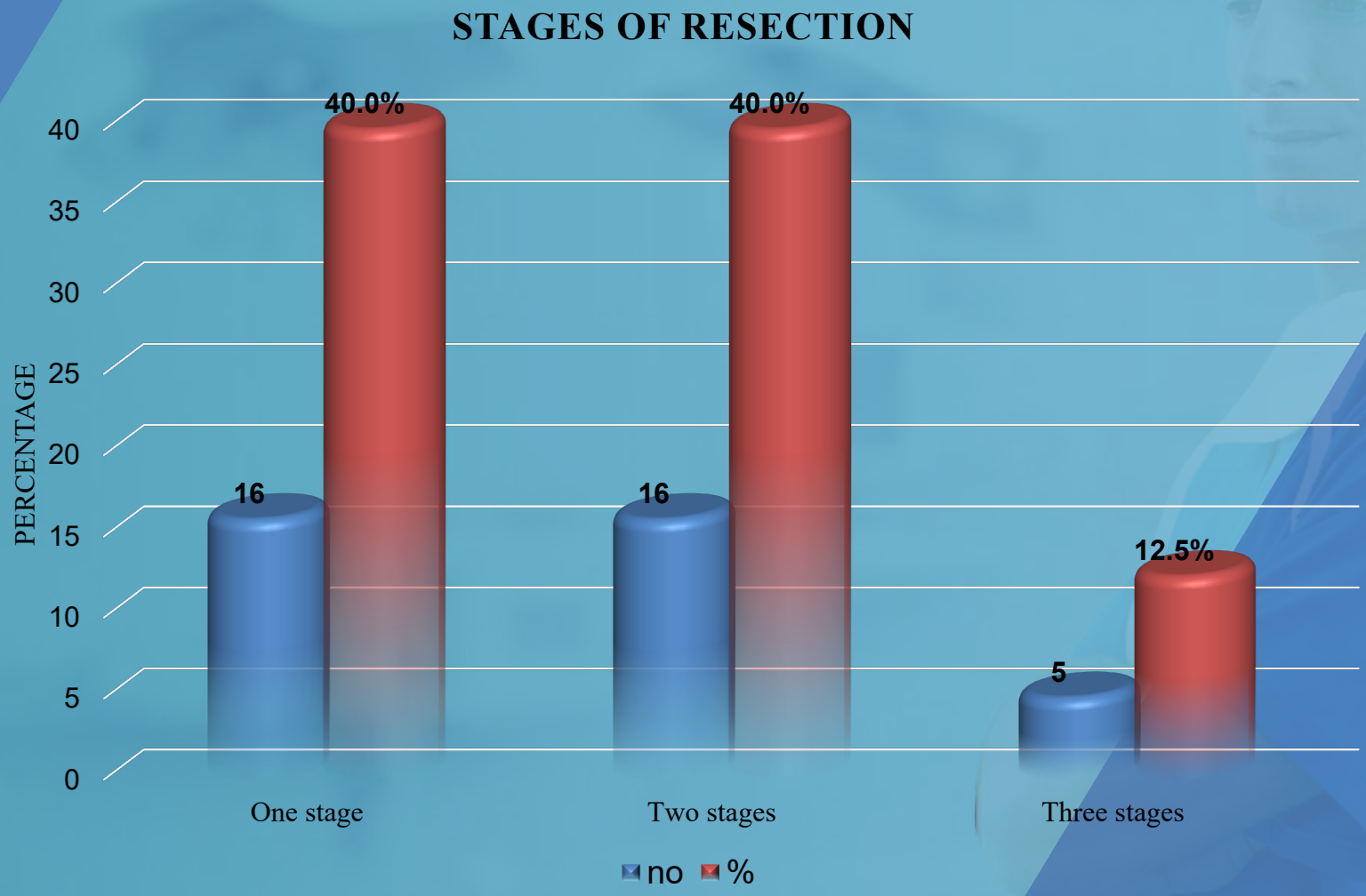
Results

Operative findings



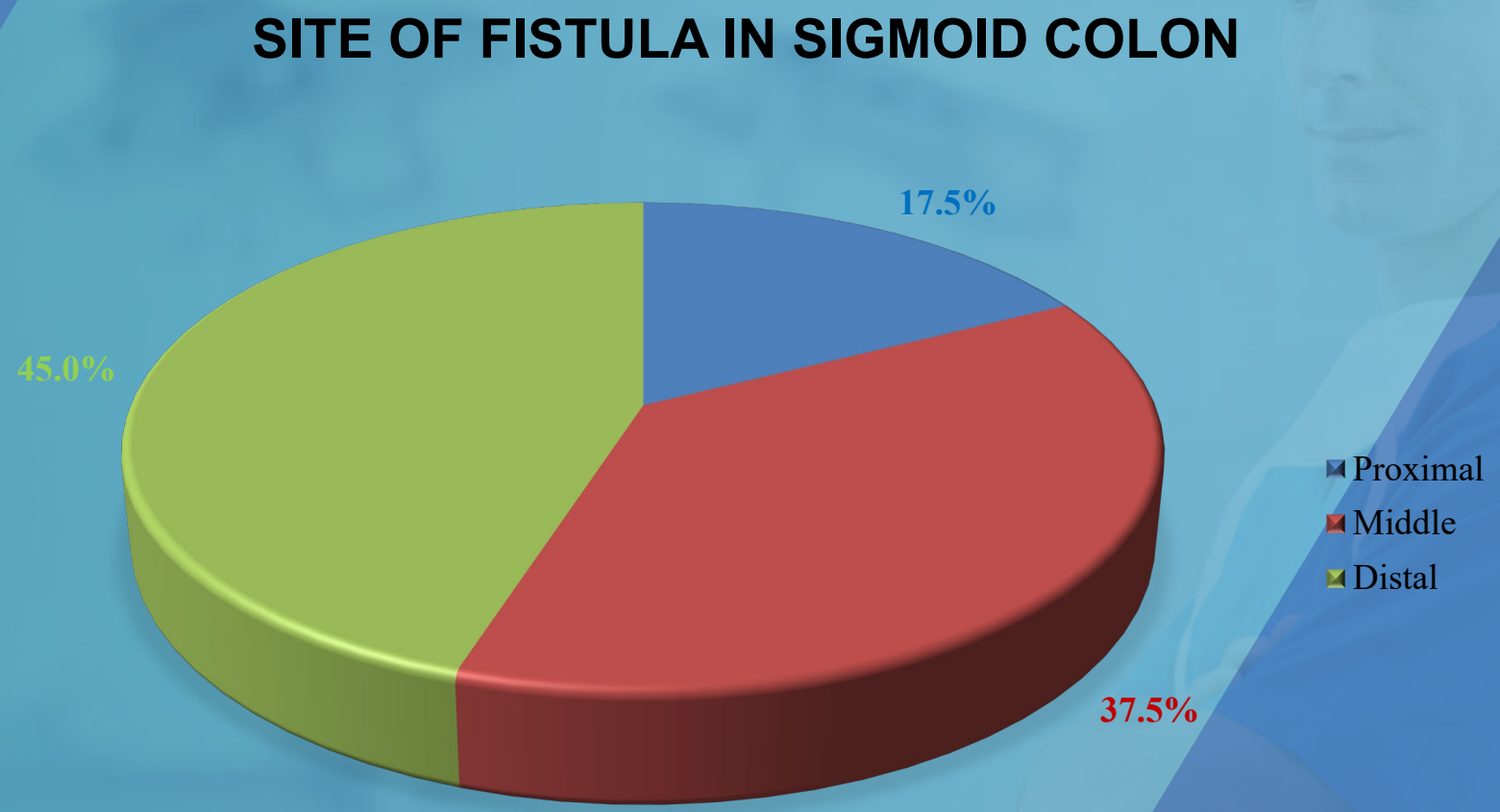
Results

Operative findings



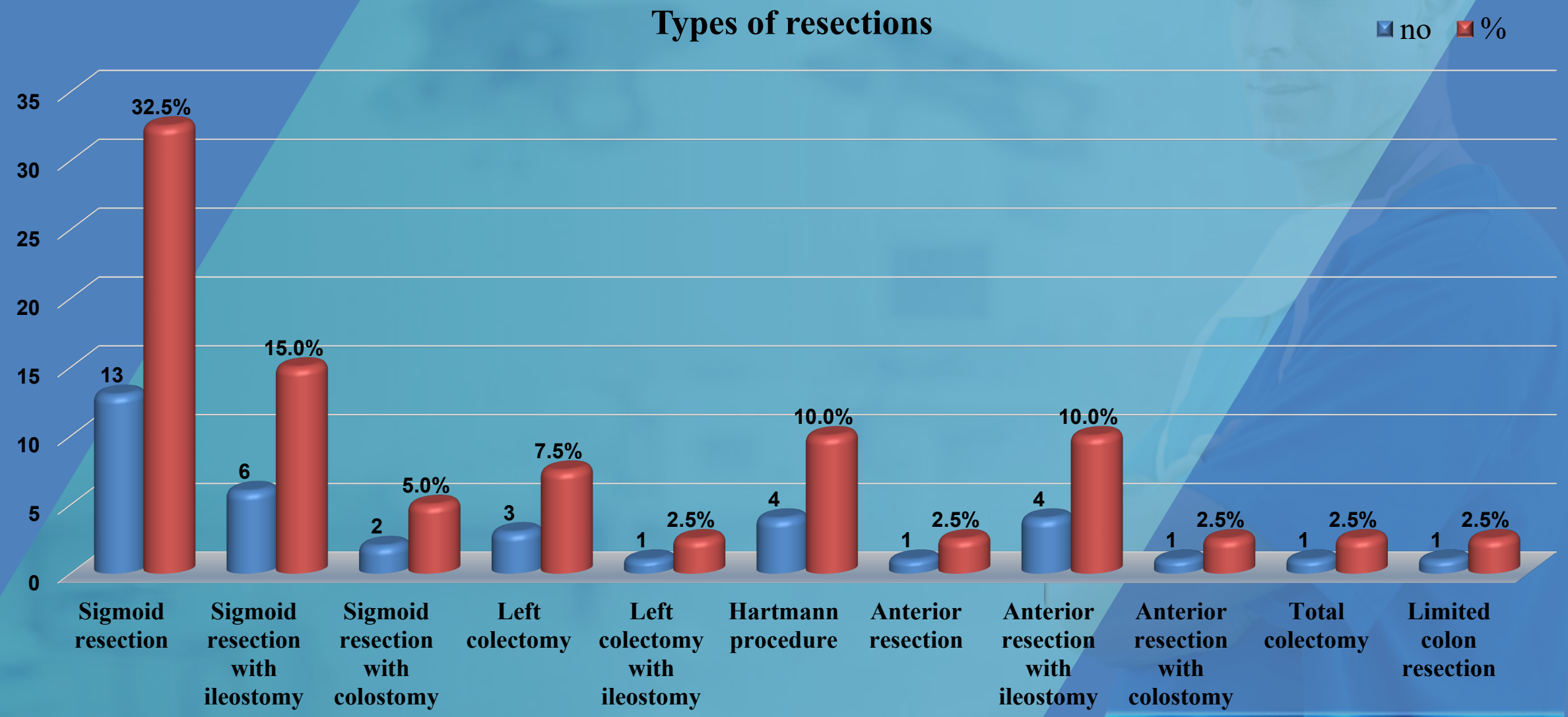
Results

Operative findings



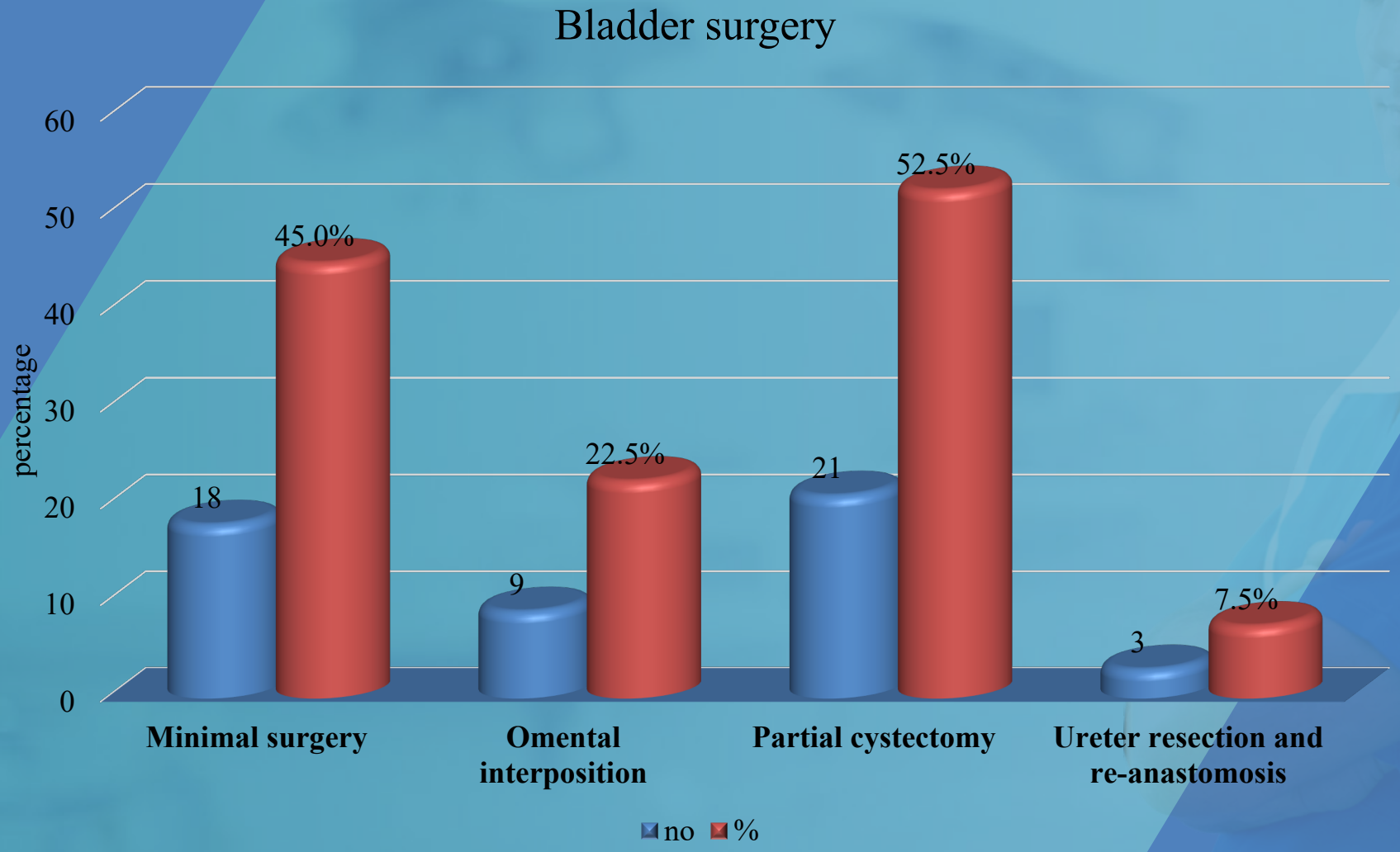
Results

Operative findings

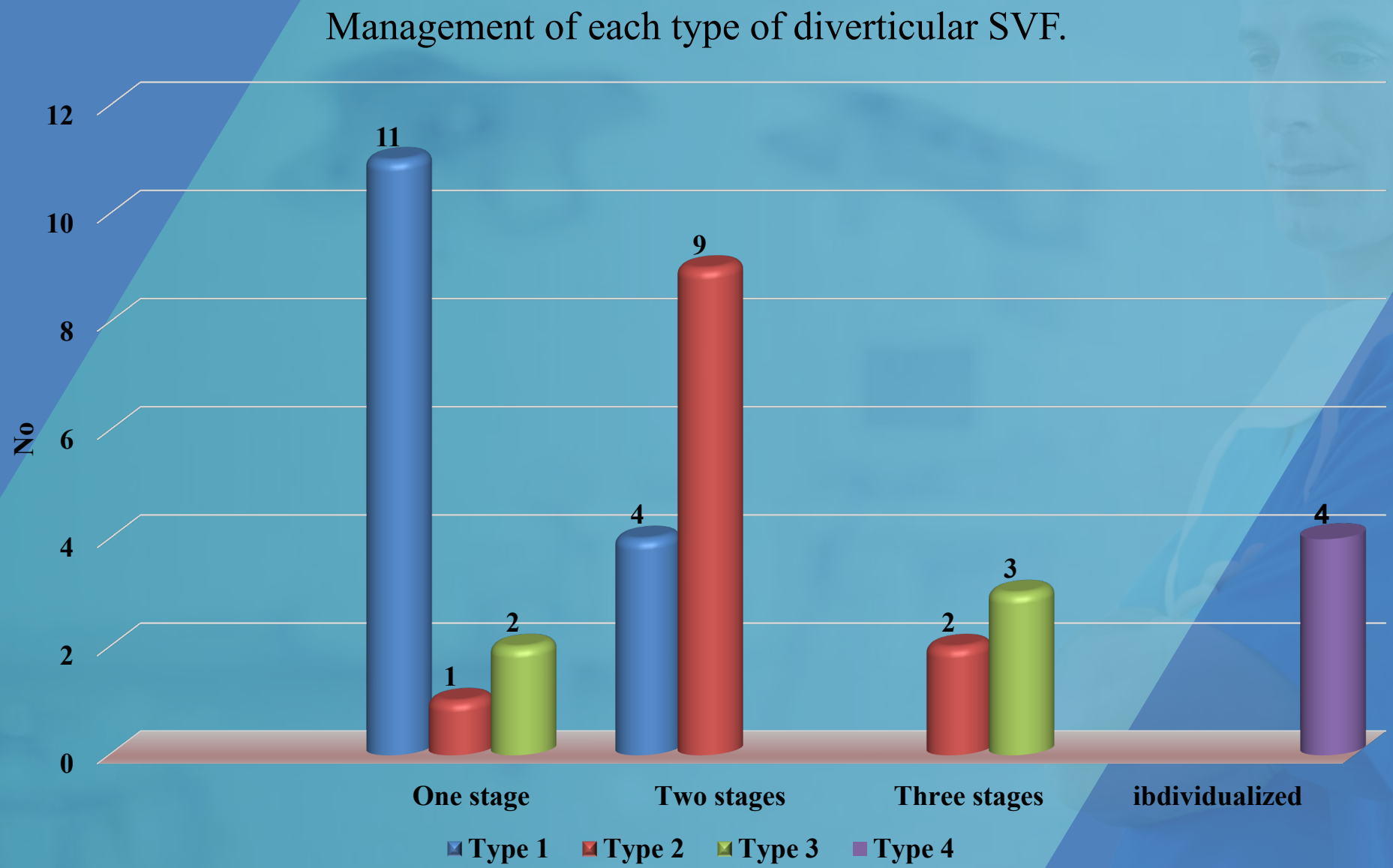


Results

Operative findings

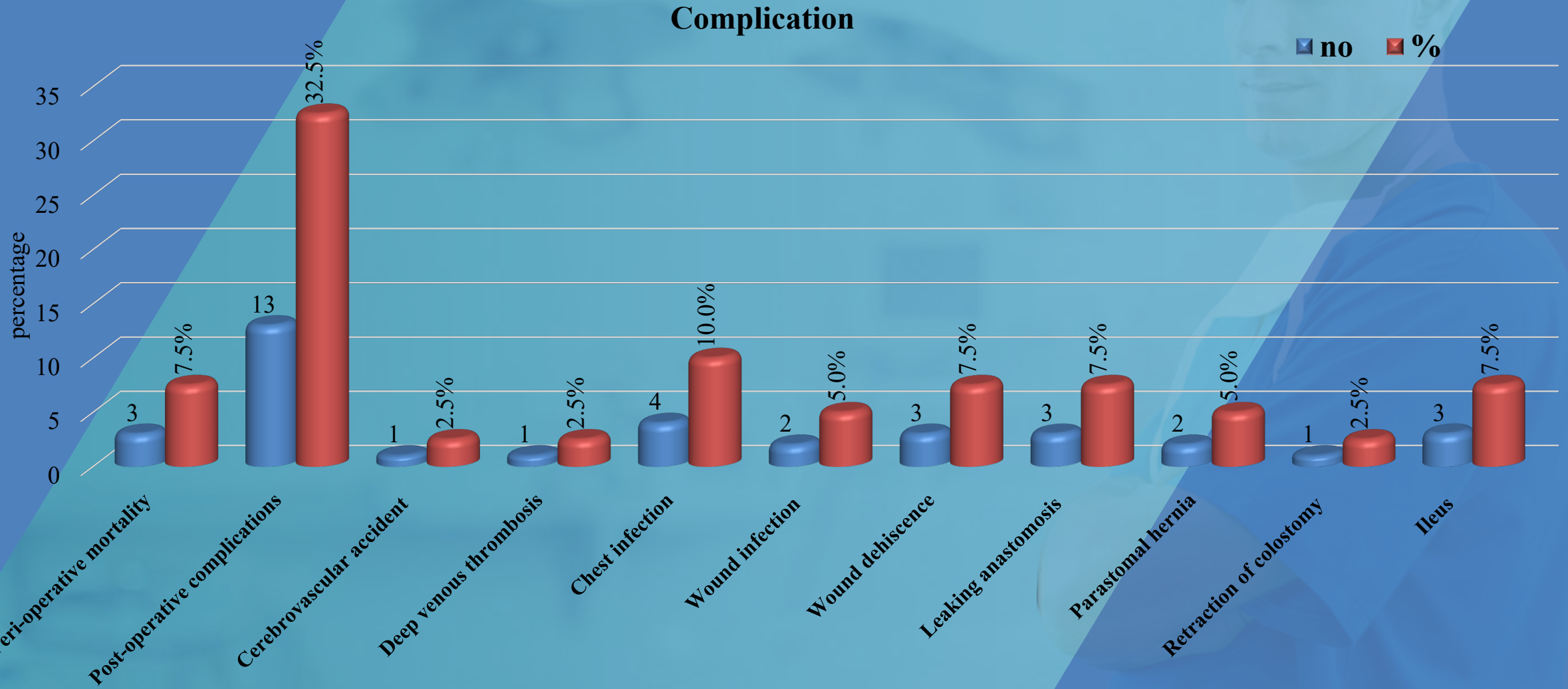


Results


Management of each type of diverticular SVF.
No
12
10
8
6
4
2
0
11
1
2
4
9
2
3
4
One stage
Two stages
Three stages
ibdividualized
Type 1
Type 2
Type 3
Type 4

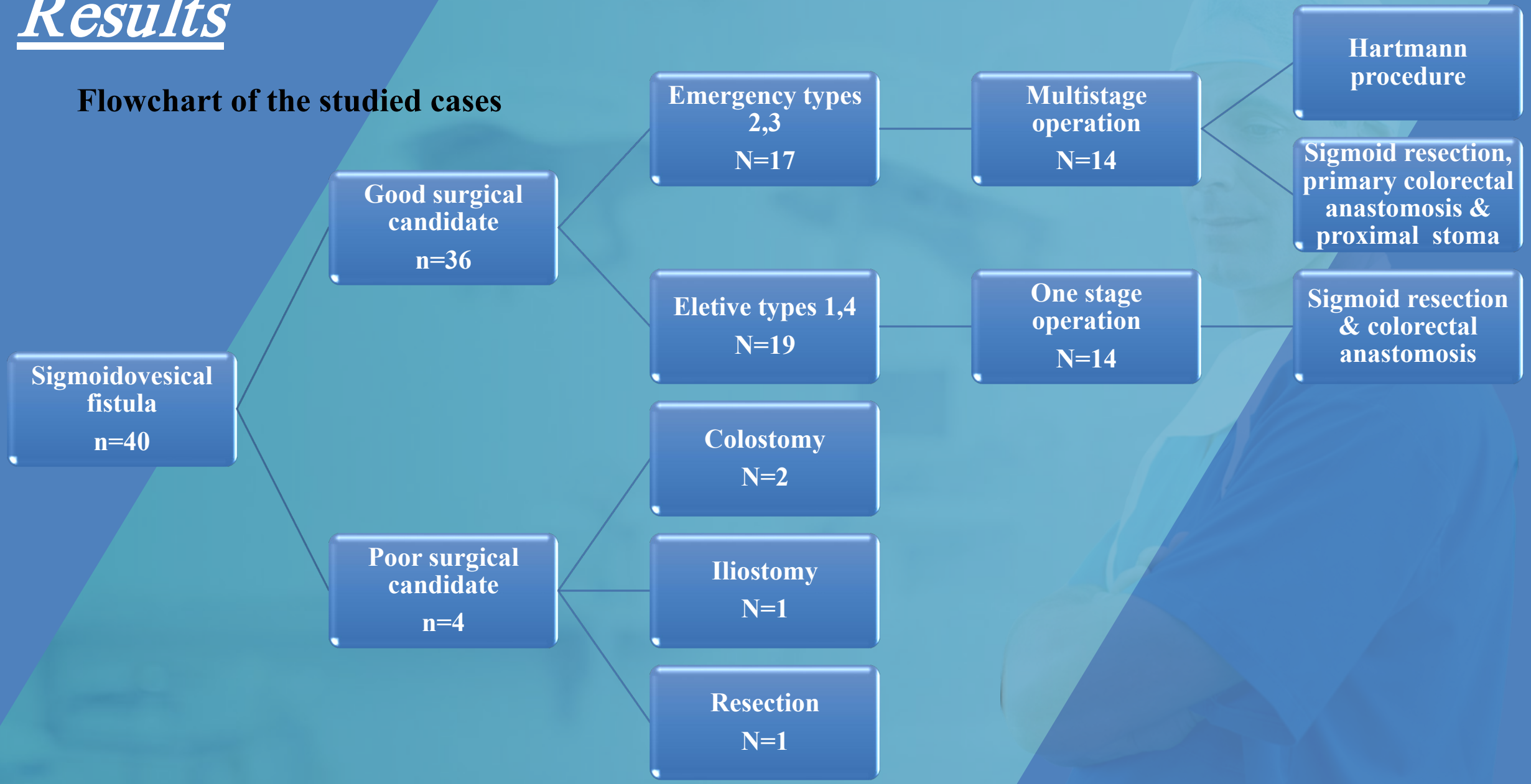
Results

Post-operative outcome in patients with diverticular SVF.



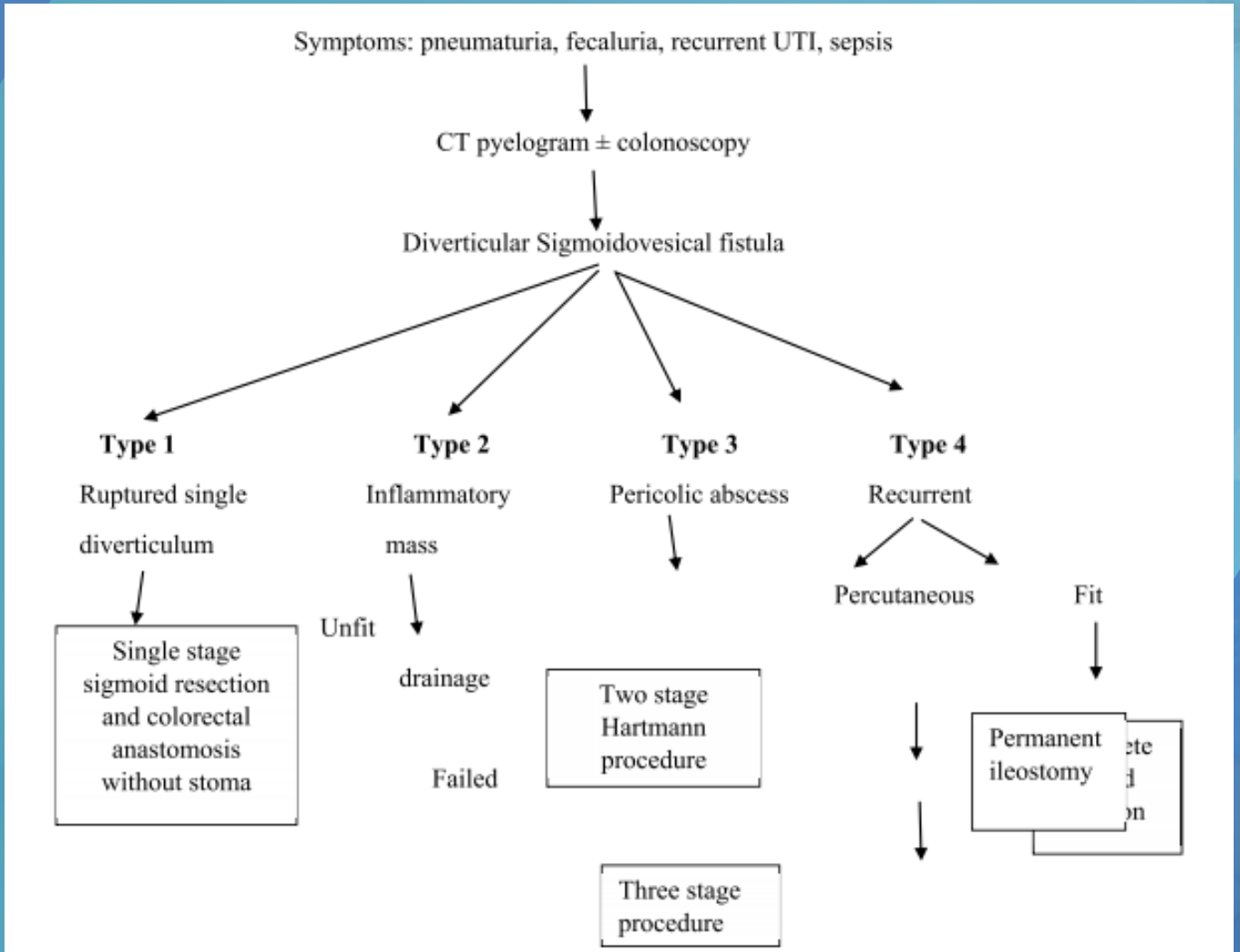
Results

Flowchart of the studied cases



Results

Algorithm of management of patients with diverticular sigmoidovesical fistula



Algorithm of management of patients with diverticular sigmoidovesical fistula.

Take home message

- ✓The potential development of CVF should be in mind of physicians treating diverticular disease especially when new symptoms as recurrent urinary tract infection or change of urine color appear.

Take home message

✓The diagnostic approach should be standardized: Adequately performed CT followed by colonoscopy are the mainstay for diagnosis

Take home message

- ✓The suggested classification is destined to give surgeons the roadmap of surgical resection except for recurrent cases, in which the treatment should be individualized.

Take home message

- ✓Type 1 SVF should be treated in a single stage by complete resection and immediate anastomosis without a stoma.
- ✓Type 2 cases are best managed in two stages
- ✓Type 3 SVF are emergently managed by three stage procedure.

Take home message

- ✓In addition to type of fistula, the patient's general condition, site in sigmoid colon and associated distal stricture should be discussed in the surgical policy.

Thank you

A. SABRY