

**Abdominoplasty: Presentation, Treatment and Complications in Sub-Saharan Africa**

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**1. Abstract**

Abdominoplasty, also called Tummy Tuck, is a surgical procedure that involves the reduction of excess redundant skin and fat of the anterior abdominal wall and the strengthening of the abdominal wall muscles. This cosmetic procedure is gaining more attention and recognition in the Sub-Saharan Africa. We intend to document the presentation, treatment and complications in the Sub-Saharan Africa of the nine teen cases that had been managed.

**2. Introduction**

Abdominoplasty is increasingly gaining acceptance in the sub-Saharan Africa. Initially, there were a lot of religious, cultural and traditional misconceptions that bedeviled the procedure. The presence of people who had undergone abdominoplasty in the populace has demystified all the misconceptions.

Historically, Thorek [1] introduced the procedure that involved the excision of redundant skin with preservation of the umbilicus. Pitanguy [2] was the first man who addressed the issue of the placement of the incision in the lower abdomen in a "W" manner. Later, Reganult [3] and Gracer [4] came up with the placement of the incision in the lower abdominal crease. Baroudi [5] modified the lower abdominal incision to a 'bicycle handlebar incision' with the plication of the abdominal muscles. In 1978, Psillakis [6] first described contouring of the abdominal wall by plicating the external oblique muscles. Umbilicoplasty is an important component of abdominoplasty as the umbilicus has been described as the central aesthetic subunit of the abdominal wall. In recent times, the combination of liposuction as adjunct to abdominoplasty, has improved body contouring procedure.

There are different types of abdominoplasty, viz: mini-abdominoplasty, full abdominoplasty and reverse abdominoplasty. The goal

of this procedure is to develop an aesthetically pleasing abdomen and can incorporate direct excision technique with plication of the abdominal wall musculature. The researchers intended to document on the presentation, treatment and complications that were encountered during the study period.

**3. Patients and Methods**

This is a six year prospective single cohort study which expanded from 1st January, 2020 to 31st December, 2021. The socio-demographic data of sex, age parity, anterior abdominal wall co-morbidities, history of medical conditions and outcome of previous surgical scars were all taken into consideration. The patient body mass index was also assessed. The common presentation was abdominal apron. The inclusion criteria were those who had excess abdominal wall skin and fat and significant abdominal wall laxity. Also included in the study were women desiring aesthetic look of the abdomen and bariatric patients who have excessive skin following significant weight loss. Exclusion criteria were those women who had not completed their child-bearing and others with severe co-morbid medical diseases. Lastly those with severe history of keloids and hypertrophic scars were also excluded.

A questionnaire was randomly distributed to 40 women and men on the knowledge, attitude and practice of abdominoplasty which helped to expose some of the hindrances to the acceptance of procedure, based on their myths and superstition.

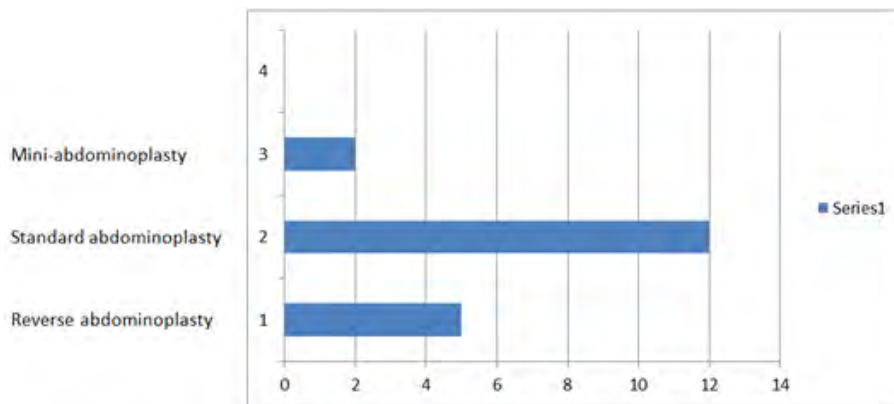
Most patients presented with abdominal apron, redundant skin and fat at the infraumbilical area, diastasis of the recti and coexisting hernias. The patients were grouped into three according to their presentation; group 1 for those requiring mini-abdominoplasty, group 2 were those requiring full abdominoplasty and group 3 were those requiring reverse abdominoplasty. Patients for full

abdominoplasty had their umbilicus translocated with umbilicoplasty. The lower crease incision span from anterior superior iliac spine (ASIS) of the right to the left. In few cases of extended abdominoplasty, the lower crease incision extended from posterior superior iliac spine (PSIS) of the right to the left. The skin flap was raised above the umbilicus and a diamond shaped incision was made around the umbilicus. Excessive skin flap was excised from the umbilical window to the lower crease incision. Patient was placed in reverse Trendelenburg position and suturing was done with nylon 0. A closed Redivac drain was applied before skin closure. Post-operative wound care was ensured. Common complications were bleeding, surgical site infections and pain. Patients were placed on analgesics, prophylactic antibiotics and vitamins. Patients were discharged on 14 day post-operative period. They spent 3-6 weeks before resumption to work.

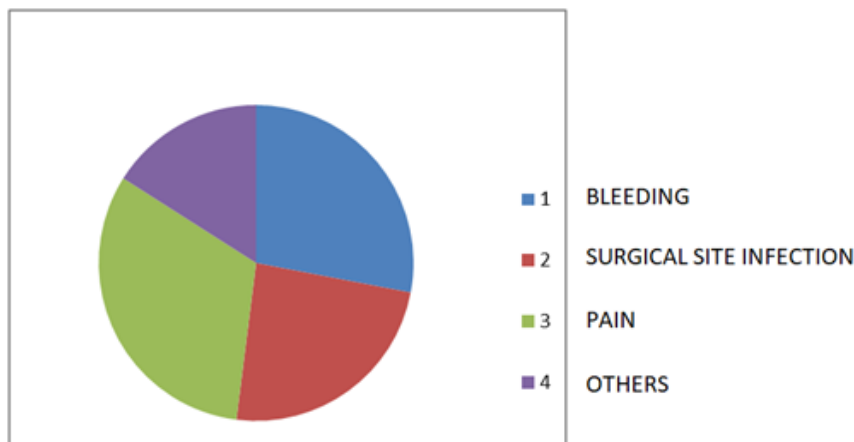
**4. Results**

Nineteen patients were recruited into the study and all were wom-

en who had completed childbearing activities. Out of the 19 patients, 5(26.3%) had mini-abdominoplasty, 12(63.2%) had full abdominoplasty while 2(10.5%) had reversed abdominoplasty (Figure 1). About 14(73.7%) representing patients with full and reversed abdominoplasty had severe pain post-operatively more than those with mini-abdominoplasty. Concerning bleeding as a complication, 12 (63.3%) representing those with full abdominoplasty had more bleeding both intra-operatively and post-operatively. However with pre- and post- operative haematocrit findings only 4(21.1%) had fresh whole blood transfusion. Surgical site infection was seen in 6 (31.6%) of the patients (Figure 2). Superficial surgical site infections were treated with wound dressing, wound swabs for microscopy, culture and antibiotics. Also two (10.5%) cases were treated with triamcinolone intralesional injection, silicone sheet and gel for hypertrophic scars. FIG.3 showed the anterior abdominal wall before and after surgery. The picture before surgery showed the extent of the hanging groin the female patient.



**Figure 1:** Nineteen patients showing the types of abdominoplasty performed.



**Figure 2:** Complications of Abdominoplasty.

**5. Analysis**

Data was collected and analyzed in simple percentage. The types of surgery and complications were represented in simple bar and pie charts.

**6. Discussion**

Abdominoplasty, otherwise called Tummy tuck, is one of fifth

common cosmetic procedures in the 21st century [7]. This procedure is gradually receiving interest and attention among the people in the sub-Saharan Africa. This procedure did not receive early acceptance because of their myths, superstition and religious beliefs. However, recent studies have shown that there are some benefits among those who have had abdominoplasty; such benefits include

reduction of back pain, support of better posture, improved stress urinary incontinence and improved confidence and self-esteem [8]. Zemlyak and colleagues conducted a retrospective study on combined ventral hernia repair and abdominoplasty. They found out that abdominoplasty with ventral hernia repair reduces the stress on the hernia repair and potentially decrease the recurrence rate [9].

In our cohort all the patients were females and males within the sub-region have not yet keyed into this procedure. The common presentation was abdominal apron (hanging grion). Few patients had mild to moderate lower abdominal excess skin and fat that had mini-abdominoplasty and a larger proportion had full abdominoplasty presenting with abdominal apron. A few of them also presented with diastasis of the recti. These patients were multipara women who had pregnancies varying between 6-9 times. Also five of the patients were morbidly obese. Two cases had associated large recurrent infra-umbilical incisional hernias that necessitated the placement of mesh with plication of the musculature of the abdominal wall, a procedure that permanently ended their problems. Patients' assessment should be done with detailed history taking, physical examination and laboratory and radiological evaluations to ensure that the patients were fit for surgery and do not carry co-morbidity that will increase morbidity or mortality. Drugs that could impair or complicate surgeries such as aspirin and non-steroidal anti-inflammatory drugs were stopped at least two weeks before surgery. This could lead to increased surgical complications. As an aesthetic procedure, all foci of infection should be eliminated before the surgery and the use of prophylactic antibiotics is ensured. Such co-morbid conditions like heart failure, diabetes mellitus, myocardial infarction, deep vein thrombosis must be excluded from surgery. A good haematocrit level as well as clotting profile must be ensured before surgery. Prognostic factors such as smoking or consumption of tobacco in any form before surgery increase the incidence of complications should also stop.

The study employed the use of clinical outcome parameters to assess the level of patients' satisfaction by using the response such as poor, fair, good and excellent. The study was also validated by using questionnaire such as Rosenberg self-esteem scale. The use of clinical photographs before and after surgery as primary outcome measure (Figure 3), help them to have a direct mirror contrast before and after the procedure. This helps to increase patient's satisfaction.

Intra operatively, pre-operative surgical markings were done and incisions placed at the lower abdominal crease extending from anterior superior iliac spine (ASIS) to the next. A skin flap was developed up to the umbilicus and the redundant skin excised and sutured. However, in full abdominoplasty the lower crease incision could be extended to the posterior superior iliac spines (PSIS) to enable the surgeon excised the redundant skin at the flank. Plication of the abdominal musculature was done as well as relocation of the umbilicus and umbilicoplasty. Aesthetically, the umbilical

hooding superiorly should be avoided. Also correction of the aging changes of the mons pubis was also performed. Wound closure with the tension directed laterally using the superficial fascia of scarpa layer as a major support of the closure should be maintained.

Post-operatively, the use of abdominal binders for 3-6 months was very helpful to ensure appropriate healing but excessive pressure should be avoided to prevent flap necrosis. Drains were removed when it has ceased to function or less than 50ml in 24 hours. Adequate analgesics, balanced diet and antibiotic prophylaxis such as ceftriaxone, cefuroxime, augmentin were given. Post operatively haematinics were given.

Post-operative complications were the setbacks to this procedure. In our cohort bleeding, pains and surgical site infection were common complications encountered. Most patients with full or reverse abdominoplasty who had dissection up to the upper abdomen had severe excruciating pain, especially on deep respiration during the early phase or patient movement. This was managed by the use of potent analgesics such as morphine and opioid. After one week period, the injectable analgesics were curtailed and oral preparations were prescribed.

Few cases where steri-drips were used to dress the wounds had no wound infection. However in cases of wound infections, wound swab microscopy, culture and sensitivity were done and prescription made according to sensitivity pattern. Fischer and colleagues conducted a study to assess the additional risk off ventral hernia repair and panniculectomy combined with hernia repair alone. The study authors found that individuals who underwent the combined procedure were significantly at risk of wound complications [10].

Bleeding was a complication seen among those patients with extensive dissection. However, the use of hypotensive anaesthesia, the use of vitamin K and tranexamic acid were measures implemented to reduced blood loss. The study has shown that these complications that were encountered in the study population were similar to other research findings. Other complications that were seen in other studies revealed skin and fat necrosis, prolonged swelling, and lung complication, prolonged recovering time and negative reactions to anaesthesia as in figure 2. The study had two patients who presented with hypertrophic scars during follow-up period. They were treated with triamcinolone intralesional injections, silicone sheet and gel. There was satisfactory outcome [11].

Another study showed 19.5% of patients experienced a general complications and 8.5% needed to be readmitted to the hospital and 5% needed another operation, adding that hooding of the umbilicus after umbilicoplasty is a complication [12]. Some other researchers found that a higher Body Mass Index (BMI), inpatient status, co-morbidity and rapid weight loss of more than 10% of body weight in the past six months increased people risk of complications. Matory (1984) and Vastine (1999) demonstrated a di-

rect relationship between body mass index and operative risk with abdominal surgery and abdominoplasty in obese patients, although the study was limited by retrospective study and small sample size [13, 14]. The American Society of Plastic Surgeons (ASPS) Practice Parameter for Surgical treatment of skin Redundancy, be performed only after an individual maintains a stable weight for two

to six months [15]. The risk of abdominoplasty could be reduced if the procedure was performed by a trained plastic surgeon as opposed to other surgical professionals. This is due to the result of advanced training and the surgeon's ability to identify ideal candidates.



**Figure 3:** Showing the abdomen before (b) and after(a) open abdominoplasty

## 7. Conclusion

Abdominoplasty, also called tummy tuck, is increasingly gaining acceptance in the sub-Saharan Africa despite the initial resistance due to misconceptions. The common presentation was abdominal apron and the desire for aesthetic abdomen and the procedure was not completely free from complications such as bleeding, scarring, pain and surgical site infection. The recent acceptance of the procedure is a step in the right direction.

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