



## Case report

# Unique hybrid double apposing flap in a Z-plasty technique to reconstruct major perianal defect resulting from chondyloma acuminatum resection – Case report

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## ABSTRACT

Perianal area is anatomically challenging location to reconstruct after wide extensive local excision especially when preserving the anus anatomy anal sphincter continence is a requirement. That is the case in many benign locally aggressive conditions, due to high risk of suture line disruption, wound dehiscence, and wound infection. Many surgical options like primary closure, loco regional flaps, distant or pedicled flaps, or even free flaps are available for such reconstruction. This is a report of a case of locally aggressive infection that was initially confused as complex perianal fistula, then sarcoma after the initial resection. Surprisingly, the permanent pathology confirmed the diagnosis of a giant condyloma acuminatum extending to the anal area, for which an extensive wide local resection with margin and temporary colostomy was done, this resulted in a large defect necessitating a reconstruction with hybrid double apposing Superior gluteal artery perforator flap (SGAP flap) and Inferior gluteal artery perforator flap (IGAP flap) in Z-plasty fashion. That healed completely with no local complication.

## 1. Introduction

Many benign local conditions like necrotizing fasciitis, hidradenitis suppurativa, sacral or ischial decubitus ulcers, and chondyloma acuminatum, of the genito-anal area can be locally aggressive and deeply infiltrating to the region [1,2]. That requires extensive and wide surgical excision, resulted defect require innovative reconstruction technique, that is unique and adequate to reduce the high rate of loco-regional complication from increased tension, and contamination due to proximity to the anus and its mucosal lining which is a sensitive anatomical location that might lead to infection and possible suture line dehiscence [3,4,5]. Perianal reconstruction has many options based on the size and location of the defect, that range from primary closure, loco-regional flaps (like limberg flaps, V–Y advancement flaps, Rotation al flaps, Transposition flaps), distant or pedicled flaps, to even free tissue transfer. Loco-regional flaps are considered the best available option because its ideal has similar tissue structure and composition preserving the underlying muscle function and its innervation which is crucial in mobile ambulatory patients. So, Majority of the locally used flaps are fascio-cutaneous flaps that is either random or has axial blood supply based on a specific anatomical perforator. Local SGAP and IGAP flaps is mentioned for some perianal pressure sore reconstruction or even as a free flap for breast reconstruction is also mentioned. This flap preserves underlying muscle at the same time provide reliable robust flap to cover

major perianal defect [6,7].

## 2. Case report

A 60-year-old male known to have Ischemic heart disease (IHD), with pacemaker, who presented to the colorectal surgery clinic with a 10 years history of extensive perianal and gluteal lesion that was misdiagnosed as complex perianal fistula. Recurrent local infections that are treated with oral antibiotics. The lesions caused him sever local symptoms that included pain, bad odor smell, and extensive purulent discharge that soil his cloth frequently, psychological and social symptoms that affected his life, no clear history of sexual contact other than his partner. Examination showed extensive left gluteal region sinuses and pedunculated swelling that ooze's easily by touch and has bad odor extending to the anal verge and laterally around 12 cm. Evidence of multiple seton thread to treat perianal fistula was present (Fig. 1). Human papilloma Virus (HPV), HIV serology were negative, skin biopsy pathology was non-conclusive showed only inflammatory changes. So, the general surgeon planned surgical excision and temporary colostomy due to the extent of the disease and sinus tracts extending to the anal verge. (Fig. 2). Defect Size was around 10X10cm extending to the anus (Fig. 3). Permanent pathology came as Chondyloma Acuminatum which is an inflammatory condition. For which patient was referred to infectious disease clinic for opinion and further management, after the

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Fig. 1. The extensive right gluteal lesion that is mis-diagnosed as perianal fistula.



Fig. 3. Skin defect after the primary excision, white arrow shows fibrosis at the lesion floor which was suspicious for sarcoma.

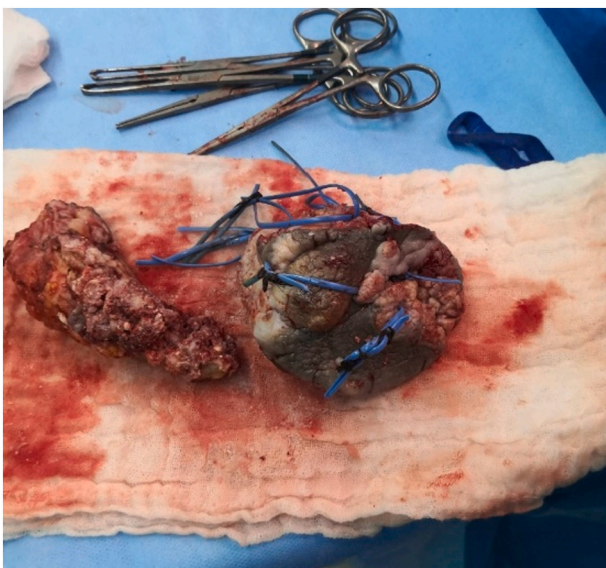


Fig. 2. Excised right gluteal area lesions.



Fig. 4. Defect after compression of medical treatment, and prior to definitive surgical excision.

completion of medical management, three weeks later patient was planned for the definitive wide excision and immediate reconstruction (Fig. 4). Complete resection preserving the anal mucosal lining was done and a planned for local flap reconstruction (Fig. 5). Hybrid double apposing Superior Gluteal Artery Perforator Flap (SGAP Flap) and Inferior Gluteal Artery Perforator Flap (IGAP Flap) was planned using the help of the hand-held Doppler to identify the perforator. Superior flap was elevated first in sub-facial plan and transposed to cover 50% of the defect and sutures to the anal mucosal line from 6 to 12 o'clock in 3 layers closure with deep layer closed with 2/0 vicryl The deep dermal layer was approximated using 3/0 vicryl and skin closed with 3/0 vicryl (Fig. 6). Then Inferior flap was elevated in sub-facial plan, transposed superiorly and sutured to anal mucosal line from 1 to 6 o'clock, in the same way the other flap was fixed to the surrounding structures (Fig. 7).

A complete tension free closure was performed on the defect and donor sites preserving anal mucosa and the underlying muscle (Figs. 8, 9, 10). Defect and reconstruction sites 6 weeks post operatively. Patient was planned for anal sphincter reconstruction by the colorectal surgeon in 3–6 months and then reversal of the temporary colostomy.

### 3. Discussion

Perianal benign condition is common and varies in severity and extent, among those lesions is the *Chondyloma Acuminatum* which is a rare sexually transmitted inflammatory disease caused by Human



Fig. 5. Perianal defect after definitive 2ry wide surgical excision.

Papilloma Virus (HPV) could also present as special entity as giant condyloma acuminatum or Buschke-Lowenstein disease that is first reported as a penile lesion by Buschke in 1896 and Löwenstein in 1925. That mainly involves the Genital area and rarely involves the anorectal area. Rectal cases are locally aggressive with tendency for slow and deep infiltration, and has a very low risk of malignant transformation only 6 cases reported in the literature, and no reported cases of distant metastasis [1,3,4,5,9–11].

Due to its local aggressive behavior, it requires extensive and wide

local excision, with adequate margin to reduce the risk of recurrence which is as high as 50% [6].

Generally perianal region reconstruction after benign locally aggressive or malignant conditions presents a challenge for reconstructive plastic surgeon and in majority of cases follows the reconstructive ladder, ranging from primary closure, or skin graft which is not feasible in an extensive defect, with high failure rate due to moist and high contamination rate of the area. Free flaps reconstruction is more challenging due to difficulty in finding a recipient vessel to perform the vascular anastomosis.

Which makes reconstruction of such area ideally by locally available flaps with different geometrical configuration usually require flap coverage that is versatile robust free of tension to overcome the high local complication rate due to sensitivity of the anatomical area and high risk of wound infection [4,7,8].

Flap use is based on many factors such as the defect size, nature of the local disease and proximity to the anal verge. The most used flaps are the rotational flap, and V–Y advancement flaps. Both are being used in many buttock and perianal condition, because they are reliable and technically simple to construct. With current advancement of flap reconstruction propeller and perforator flaps is gaining popularity. They tend to preserve the underlying muscle minimizing the local morbidity specially in actively ambulating patients [12].

Of that local perforator is the Superior Gluteal Artery Perforator (SGAP) flap, or Inferior Gluteal Artery Perforator (IGAP) flap which is well described in the literature for breast reconstruction as free flaps [13], and also can be used locally for many benign local conditions like pressure sore, extensive hidradenitis suppurativa [14,15,16,17,19,20]. I report a special case were SGAP and IGAP flaps were used locally as a double flap in z-plasty fashion based on their perforators to reconstruct sizable perianal defect resulted from resection of major inflammatory condyloma acuminatum lesion extending to the anal mucosal line with great success of providing robust vascular supply, no complication, donor site was closed primarily with no tension and gluteus maximus muscle function was completely preserved. Another major advantage gained from providing double suturing line around the anus from two different direction superiorly and inferiorly was a reduction in the incidence of suture line dehiscence that usually observed when a single flap reconstruction is used in anal procedures like anal stenosis [21].

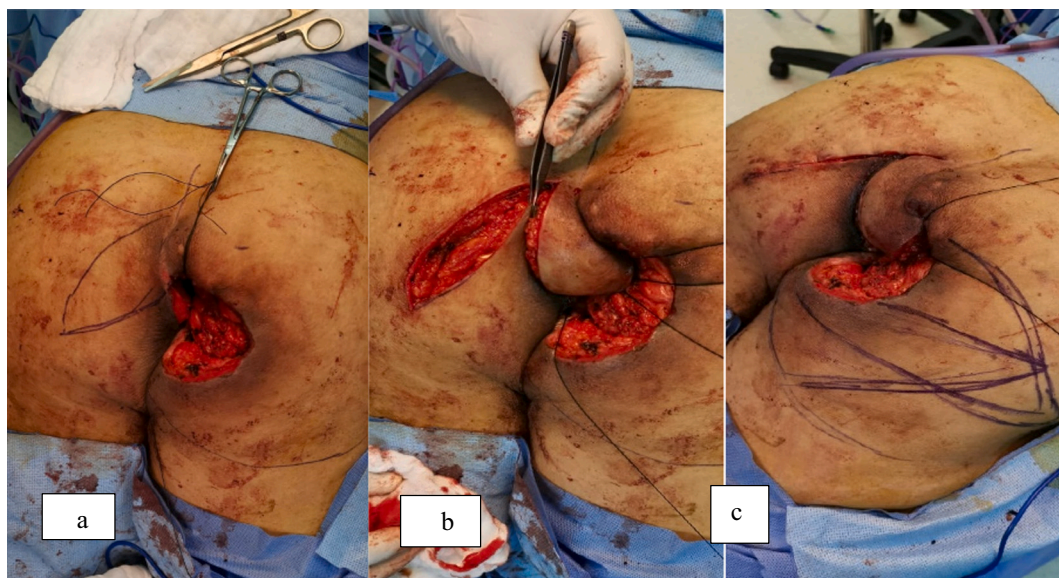
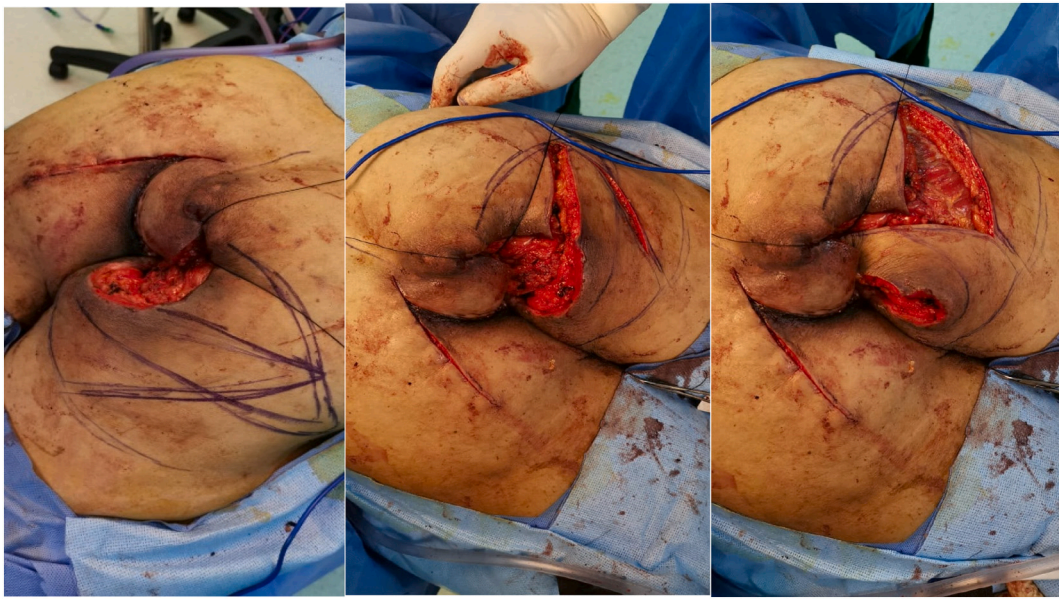


Fig. 6. (a, b, c). Superior gluteal artery flap. a. SGAP flap designed b. Flap dissected elevated and transposed and sutured to the defect from 6 to 12 o'clock.



**Fig. 7.** (a, b, c). Inferior gluteal artery flap. a. Flap design. B. Flap elevated. Flap transposed and sutured to anal defect from 12 to 6 o'clock.



**Fig. 8.** Defect closed by superior and inferior gluteal artery flaps on table.

#### 4. Conclusion

Even benign perianal condition can result in an extensive sizable local defect that might extend to the anal verge and require extremely challenging reconstruction. Perforator local flaps including the SGAP



**Fig. 9.** Defect closed by flaps and anus is shown by the white arrow closed by suturing the 2 flaps SGAP from 12 to 6 O'clock and IGAP sutured from 12 to 6 o'clock.



Fig. 10. Flaps healed completely 6 weeks later.

and IGAP provide valuable locally available options in the reconstruction ladder dealing with a such resulting large defect. This is true, especially when harvested bilaterally to reconstruct sizable defect and suturing it to the anal verge with two different suture line from different angles aiming to reduce wound dehiscence and its complication rate while preserving the underlying muscle function. Such flaps must be kept in mind and part of the reconstruction ladder when reconstruction a major sizable perianal defect.

## Declaration of competing interest

No conflict of interest.

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