ISSN 2639-8109 | Volume 14

Annals of Clinical and Medical Case Reports®

Case Series Open Access

Nerve Sparing Clitoroplasty for Megaclitoris: A Reliable Option with Better Outcomes

Arshdeep Singh, Rahul Saini, Vaddi Suman Babu and Mukesh Kumar Sharma*

Department of Burns and Plastic Surgery, Atal Bihari Vajpayee Institute of Medical Sciences and Dr Ram Manohar Lohia Hospital, New Delhi, India

***Corresponding Author:**
Mukesh Kumar Sharma, Department of Burns and Plastic SurgeryAtal Bihari Vajpayee Institute of Medical Sciences and Dr Ram Manohar Lohia HospitalBaba Kharak Singh Marg
New Delhi - 110001, India

Received: 13 Mar 2025
Accepted: 21 Mar 2025
Published: 24 Mar 2025
J Short Name: ACMCR

Citation: MK Sharma. Nerve Sparing Clitoroplasty for Megaclitoris: A Reliable Option with Better Outcomes. Anna Clin Med Case Rep®. 2025; 14(11): 1-3

1. Introduction

Clitoromegaly, also known as megaclitoris, is defined when the clitoral index (length x breadth) of the adult female clitoris measures more than 35 mm2 [1,2]. The average width of the clitoris is usually 3 to 4 mm, and the length is 4 to 5 mm in adults [3]. Most common cause of clitoral hypertrophy is congenital adrenal hyperplasia (CAH) caused due to the enzyme twenty-one hydroxylase (OH) deficiency in about 90% of cases [4]. It is characterized by reduced production of cortisol and aldosterone and increased 17-OH-progesterone (OHP) and sex steroids. The excess androgens cause virilization of the female leading to clitoromegaly and ambiguous genitalia. Idiopathic clitoral enlargement is also a rare presentation.Clitoromegaly is a cause of serious cosmetic and functional deficiencies in girls who have this rare problem. Not only does it cause embarrassment and has a negative effect on one's self-body image, it also interferes with sexual intercourse and causes inadequacies in sexual functional outcome. We present a study of six adult patients with clitoromegaly who were treated with nerve sparing clitoroplasty and evaluated the somatosensory as well as the sexual function in these patients postoperatively at three, six, and twelve months using the female sexual function index (FSFI) score [5].

2. Patients and Methods

From October 2019 to October 2022, six sexually active adult female patients with clitoromegaly who underwent nerve sparing clitoroplasty were included in this study. The age of the patients at surgery varied from 19 to 27 years. Four patients had CAH and two had idiopathic clitoromegaly. All the Patients with CAH underwent evaluation and received medical treatment preoperatively. Out of six patients, four patients were unmarried and two were married. Clitoral sensation was checked pre-operatively and found to be present in all patients. Baseline FSFI score was noted for each of them.They were followed up for a period of one year after surgery and evaluated based on FSFI scores. Two patients were lost to follow up at one year. The results in terms of cosmesis, and sexual satisfaction were also assessed. The initial assessment was done at three months post-operatively and followed up at six and 12 months (Table 1).

3. Surgical Technique

We performed reduction clitoroplasty with preservation of the dorsal neurovascular pedicle to maintain the sensations of the glans clitoris (Figure 1). After retracting the prepuce, the glans was exposed and a stay suture was taken on the glans. A 270 degree circumferential incision line 1 cm proximal to the glans sulcus was made to deglove the clitoris and expose the corporeal bodies, at the same time preserving the vascular supply to the glans via the preserved ventral skin. Two incisions were marked on the dorsum at 4 O'clock and 8 O'clock positions running along the length of clitoris from the glans sulcus to its base. The dissection was done in sub-tunical plane to separate and raise the neurovascular pedicle from the corpora. The separated corpora was excised in its length from the glans sulcus till the base. The glans was sutured to the proximal amputated clitoral stump with polyglactin 4-0 suture, thus achieving the desired reduction in length with preservation of neurovascular bundles and glans. In three patients with an oversized glans diameter, a wedge resection of glans was also included to reduce its bulk, keeping in mind the spontaneous physiological atrophy and decrease in bulk postoperatively due to inadvertent decrease in perfusion of the glans. The prepuce of the clitoris was created by trimming the skin, and the rest of the skin was used to reconstruct labia minora. For all patients, a common postoperative protocol was followed. Foley's catheter was left in-situ for five days to prevent soiling. First dressing was opened on second postoperative day and glans was checked for vitality. The sutured site was left open and patient was advised to apply neosporin ointment over the surgical site after cleaning the area with a mild soap and water. Patients were discharged after first dressing, if there were no complications. They were followed up weekly. Clitoral sensations were checked at three months and abstinence from sexual intercourse was advised for three months.

4. Results

All the six patients had an uneventful postoperative period. The wounds healed well without any complications in the follow-up period. We checked the clitoral sensation at three months post-surgery to allow complete healing of the surgical wounds and any neuropraxia to recover. Of the Six patients, five patients reported preservation of sensations to touch, temperature and vibration as was before surgery and one patient described decrease in sensations which improved over the follow-up period of 12 months. Four patients who underwent surgery before marriage were followed up after marriage and assessed. It was observed that all patients had gradual improvement in FSFI scores after the surgery. All six patients were satisfied with the cosmesis and reported improved sexual function and satisfaction after the procedure.

5. Discussion

The clitoris is an important organ in the female genital tract. The nerves and vessels form an extensive network around the end of corporeal bodies and glans making it an important organ of sexual function. The contribution of different parts of the clitoral complex to sexual arousal and orgasm is complicated and not clear. To maintain the optimal sexual function after surgical correction of clitoral hypertrophy, the neural innervation and vascular supply to the glans clitoris must be preserved. Treatment procedures in the past, involved excision of the hypertrophied clitoris (clitorectomy), a rather mutilating surgery [6,7]. Later on, it was realized that the glans is an important organ of erotic sensitivity of a woman and its preservation is important for optimum sexual function. Hence, surgical techniques aiming to preserve the clitoris (clitoroplasty) partly or whole were introduced. Clitoral recession was later introduced as a procedure where the clitoris was hidden behind the pubis and was retained

Table 1: patient profiles (FSFI- female sexual function index).

S. No.	Age (in years)	Preoperative Length of clitoris (in centimeters)	Baseline FSFI	FSFI 3 months	FSFI 6 months	FSFI 12 months	Self -body image
1	22	6	8	14	21	lost to follow up	Improved
2	24	8	3	18	23	26	Improved
3	23	7	5	17	21	25	Improved
4	25	10	5	14	14	25	Improved
5	22	8	6	15	18	lost to follow up	Improved
6	24	10.5	4	17	17	27	Improved

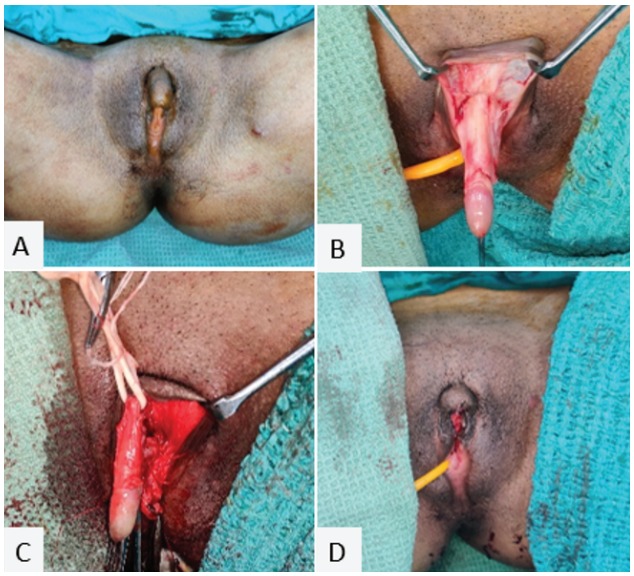

Figure 1: A) Preoperative picture showing clitoromegaly;
B) Intraoperative picture after degloving of clitoris;
C) Intraoperative picture showing dissected neurovascular bundle (spared);
D) Postoperative picture showing well preserved clitoral length.

[8]. This technique had several disadvantages, since during sexual arousal the erectile tissue of the clitoris hidden behind the pubis would become engorged and cause pain and discomfort to the patient [9]. This was hence discontinued. To counter these shortcomings in previous surgical techniques, the nerve sparing clitoroplasty was introduced which aimed at preserving the dorsal neurovascular bundles, hence preserving the somatosensory function of the clitoris and its sexual function [10,11]. There have been various studies in the past that have extensively elaborated the various techniques and advantages including sensory preservation in the now standardized, nerve sparing clitoroplasty, but none of the studies have tried to find out the implications of this technique in the eventual sexual outcome of the patient post procedure. This is a striking lapse since these techniques were developed with the primary aim to preserve the fine sensations and integrity of the corporeal bodies and yet none of the previous studies in literature attempt to verify the same. One of the reasons for this could be the lack of a validated post-operative patient sexual outcome score or grading system. Although there are several studies that demonstrate and record the preserved sensations to fine touch, temperature, vibration and pain in post operated clitoroplasty patients, how much of this translates into a well-preserved sexual function is rather unclear and obscure. One such scoring system is the six item female sexual function index (FSFI), having score range from 2 to 30. Higher the score, better is the overall female satisfaction. But it is a subjective measure of female sexual outcome [5]. Another pitfall in the current understanding of the clitoral function post operatively stems from the fact that most of the studies have been conducted in developed nations where the condition is recognised and operated early, usually within the first few years of life. In contrast, in developing nations, the treatment is usually procrastinated to late adolescence or immediate pre-marital years, due to lack of specialist tertiary centers dealing with this rare condition and lack of guidance directing patients to such centers along with the associated social stigma with clitoromegaly.As such, the majority of studies lack data regarding the follow up of children operated for clitoroplasty into their adulthood when they become sexually active. There is a scarcity of published studies outlining the outcome of surgery in patients undergoing nerve sparing clitoroplasty. In our study we operated six patients in their early adulthood with nerve sparing clitoroplasty and have attempted to assess not only their sexual function but also their self-perception about aesthetic outcome and body image post-surgery using FSFI scores. We found that all six patients were very satisfied along with higher FSFI scores that improved from baseline to 12 months post procedure. We also identified the surgery to be beneficial in improving their self-esteem and confidence and all the patients were satisfied with the outcome aesthetically. All six patients had painless sexual arousal as compared to pre-operatively when the engorged clitoris caused pain. They were able to achieve orgasm during coitus postoperatively. Recent studies of Masters and Johnson [12] and Randolph and Hung [13] have established the importance of clitoris in sexual stimulation and hence reiterates the importance of preserving it. Many techniques have been described to create a near normal looking external female genitalia, and focused on correcting the volume and size of clitoris [14,15]. Of these techniques, Spencer and Allen, and Kumar techniques focus on preservation of the clitoral sensitivity and have proved more successful [16,17]. In this case series, the surgical procedure was a combined procedure of the Kumar and the Spencer and Allen techniques, whereby it consisted of preserving the base of the clitoris joined to the neurovascular bundle and the Buck fascia, preserving the sensitivity and giving an aesthetic profile.In a study conducted by Kadian YS et al. [18], they inferred that the reduction clitoroplasty at 8 and 4 o'clock incisions into buck fascia was a good method of preserving the neurovascular bundle and hence clitoral sensations, as was seen in our study. However their study was conducted in a pediatric age group with no evaluation of sexual outcome, which our study has attempted to do.In another study involving 20 pediatric patients, who underwent nerve sparing clitoroplasty, they assessed the sensations of clitoris to touch and pressure and found them to be preserved [19]. In our study also the sensations were preserved to touch, temperature and vibration. Nerve sparing clitoroplasty has become the gold standard procedure in the management of clitoromegaly which has improved the surgical outcome and also relieved the patient from the complaints of enlarged clitoris.

The lacunae of this study include the small sample size which is due to the rare incidence of the condition. Also, since the parameters of the female sexual function index (FSFI) are subjective, there is no definitive assessment tool for their objective evaluation, hence patient reported data was used to analyze the results of our study.

6. Conclusion

Clitoral enlargement is a cause of serious cosmetic deformity and interferes with optimal sexual function of the patient. Nerve sparing clitoroplasty adequately preserves the sensation of clitoris which translates into satisfactory sexual outcome for the patient. Additionally, it corrects the cosmetic deformity, improves the self-body image and alleviates embarrassment, if any, associated with the condition.

References

1. Nigam A, Prakash A, Sarema P, Yadav R, Raghunandan C. Hirsutism and abnormal genitalia. JIACM. 2011; 12:468.
2. Tuteja N, Saluja S, Jain SK, Yadav A, Agarwal LD, Hooja N. Congenital Idiopathic Isolated Clitoromegaly. Int J App Basic Med Res. 2014; 4:1924.
3. Verkauf BS, Von Thron J, O'Brien WF. Clitoral size in normal women. Obstet Gynecol. 1992;80:41-4.
4. Committee on Genetics, Section on Endocrinology, Section on Urology. Evaluation of the newborn with developmental anomalies of the external genitalia. American Academy of Pediatrics. Committee on Genetics. Pediatrics. 2000;106:138-42
5. Isidori AM, Pozza C, Esposito K, Giugliano D, Morano S, Vignozzi L, Corona G. Outcomes assessment: Development and validation of a 6-item version of the Female Sexual Function Index (FSFI) as a diagnostic tool for female sexual dysfunction. The journal of sexual medicine. 2010;7(3):1139-46.
6. Young HH. Genital abnormalities, Hermaphroditism and Related Adrenal Diseases. Baltimore: Williams & Wilkins. 1937.
7. Gross RE, Randolph J, Crigler Jr JF. Clitorectomy for sexual abnormalities: Indication and technique. Surgery. 1966;59:300-8.
8. Lattimer JK: Relocation and recession of the enlarged clitoris with preservation of the glans: an alternative to amputation. J Urol. 1961; 86: 113.
9. Schober JM. Long-term outcomes and changing attitudes to intersexuality. BJU Int. 1999;83:39-50.
10. Lean WL, Hutson JM, Deshpande AV, Grover S. Clitoroplasty: Past present and future. PediatrSurgInt. 2007; 23:28993.
11. Pippi Salle JL, Braga LP, Macedo N, Rosito N, Bagli D. Corporeal sparing dismembered clitoroplasty: An alternative technique for feminizing genitoplasty. J Urol. 2007;178:1796801.
12. Masters WH, Johnson VE. Human Sexual Response. Boston, Little, Brown, and Co. 1966; 60.
13. Randolph JG, Hung W. Reduction Clitoroplasty in Females with Hypertrophied Clitoris. JPediatr Surg. 1970; 5:224.
14. Yankovic F, Cherian A, Steven L, Mathur A, Cuckow P. Current practice in feminizing surgery for congenital adrenal hyperplasia; a specialist survey. Journal of pediatric urology. 2013;9(6):1103-7.
15. Núñez Serrano AA, Núñez Laiseca M, Elena Sorando E, Arranz López JL, García Martinez L. Reconstrucción genital integral en la HiperplasiaSuprarrenalCongénita: sensibilidad, estética y función (embarazo). CirugíaPlástica Ibero-Latinoamericana. 2010;36(1):79-86.
16. Kumar H. Kiefer JH, Rosenthal IE. Clitoroplasty: Experience during a nineteen year period. J Urollll:S. 1974; l-84.
17. Allen LE, Hardy BE, Churchill BM: The surgical management of the enlarged clitoris. J Ural. 1982; 128:351-354.
18. Kadian YS, Pradeep K, Verma V. Feminizing genitoplasty in congenital adrenal hyperplasia: A new method for clitoral reduction. Arch Int Surg. 2016;6:153-7.
19. Acimi S, Acimi MA, Debbous L, Bessahraoui M, Bouanani I. Clitoroplasty: A variant of the technique by Acimi. Arab Journal of Urology. 2018;16(2):232-7.