

## **Abstract**

**Objective:** To audit the clinical features and outcomes for all patients referred to our centre with concerns regarding labial appearance.

**Patients and Methods:** Young females referred to a Paediatric/Adolescent Gynaecology Tertiary Center between 2000 and 2012 with concerns regarding their labial appearance were retrospectively identified. Adolescents presenting with anomalies were excluded. Retrospective chart review was undertaken to identify reasons for referral, patient characteristics, outcome of referral and concurrent health problems.

**Results:** Forty-six females presenting with concerns about labial appearance were identified. Five were excluded. Median age of study population was 14.5 years (range 5-21 years). Only 4 (9.8%) underwent surgery after a minimum of 5 consultations each, with mental health review in 3 of 4 cases prior to surgery. None of the 41 patients had documented abnormal labia, however, 6 patients had asymmetry and 3 had labial width of > 5 cm. 24% of mothers (n=10) raised the initial concern regarding labial appearance to a physician, of whom, 50% of patients had a co-morbid condition. 70.7% initially reported interference with daily activities and 87.8% were reassured following discussion.

**Conclusion:** With appropriate education and counseling the majority of girls with concerns regarding labial appearance can be managed without surgery. Overall, our data supports current international policy that FCGS (Female Cosmetic Genital Surgery) not be performed in mature minors unless there are specific indications. More research about characteristics of patients referred with labial concerns, definition of labial size and long-term satisfaction of conservative versus surgical is necessary to determine the best approach.

## **Key Words:**

Labial appearance, labial hypertrophy labioplasty, audit, paediatric, adolescent, body image

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## Introduction:

The demand for female genital cosmetic surgery has been progressively increasing both in Australia and throughout the world (1). Medicare data in Australia demonstrates that the number of labioplasty procedures across all ages from age 10 to 60 has increased from 259 procedures in 1994 to 1565 in 2011, a 6-fold increase(2). In the United Kingdom, there has likewise been a 5-fold increase in labial reduction procedures in the last 10 years(3)(4). Data from both these sources may be an underestimate, as some procedures undertaken privately will not be included in medicare figures. Data specific to the younger population reveals that for the 15-24 year old age group, the increase has been 6- fold between 1994 and 2013 (when there were changes to medicare funding for this procedure) although no change in the rate in the 5-14 year old age group has been seen.

Labioplasty was first mentioned in the literature in 1971 (5) and became associated with aesthetic procedures in 1984 (6). The expression female cosmetic genital surgery (FCGS) has been adopted to include labioplasty as well as other procedures undertaken for aesthetic reasons on the female genitals. A recent review of labioplasty procedures has highlighted a lack of information regarding the range of normal measurements for the labia minora, as well as absence of accurate data on outcomes of treatment (both conservative and surgical), complications and satisfaction following labioplasty (7). Additionally information regarding the

changes to the labia that occur during puberty and further changes that may occur with age or pregnancy is absent.

Even in the adult setting there is only limited research on women's dissatisfaction with their genital appearance and requests for genital labioplasty. These studies have primarily been retrospective (8). The online marketing of labioplasty and other FGCS procedures includes very little information on short or long-term complications or risks, but incorporates unsubstantiated claims regarding physical, psychological and sexual benefits (9)

Surgical complications of labioplasty reported include bleeding, infection, wound dehiscence, over-reduction (10, 11), new clitoral hood deformities (12), dissatisfaction (7%) and regrowth of labia to previous size (particularly in the pre-adult population) resulting in increased rates of re-operation (17)

There is some evidence from studies of women who have had FGCS suggesting that surgical correction of the perceived abnormal genitalia does not lead to improved self esteem or sexual satisfaction and may in fact cause long term pain and scarring (13, 14). An association with sexual risk taking behaviours has been observed (15). Never the less, a survey on adult women who had undergone labioplasty, undertaken 6-42 months after surgery reported a high satisfaction rate of 90%, albeit without objective assessment of indications (30).

Information regarding labioplasty and FGCS specific to paediatric and adolescents is very limited. In Norway, 4.9% of young women from a population based long-term follow-up (13 years) study of 1597 female adolescents from a representative Norwegian group reported that they had had plastic surgery (67% response rate). The mean age of the cosmetic procedure was 24.6 years (+ 3.9years) with the most common procedure being cosmetic breast surgery, with no genital procedures being identified (15). However, of the young women questioned (n=71), cosmetic surgery was associated with an increase in symptoms of depression and anxiety, disordered eating and excessive use of alcohol following the surgery compared with those who had not had surgery. Moreover, 8.5% underwent more than one procedure, with one patient having had 5 procedures. This suggests that cosmetic surgery is being performed in young women and teenagers with psychological disturbances that are not necessarily improved post surgery (16).

Despite the paucity of research focusing on the paediatric/adolescent population there are now statements from both the North American Society of Pediatric and Adolescent Gynecology and the British Society for Paediatric and Adolescent Gynaecology. In their statements, they discuss labioplasty in adolescents and the associated risks and the failure of the surgical procedures to address the social and economical factors leading to the distress concerning ones genital appearance (17)((18).

The goal of this retrospective review of all patient referrals for labial appearance to the Royal Children's Hospital – Melbourne, Australia, and to identify any co-morbidities that had been recognized in the consultation.

#### Materials and Methods:

Clinical research ethics approval was received to retrospectively review all female patients aged up to age 21 referred with concerns regarding labial appearance between 2000 and 2012 to both the Paediatric and Adolescent Gynaecology Service at the Royal Children's Hospital Melbourne and the private practice of one of the paediatric and adolescent gynaecologists (Ethics Number HREC 32256 A). Charts were identified from the databases of these two sources. Patients who had undergone genital surgery following genital trauma or due to congenital genital anomalies were then excluded from the analysis. Medical charts were reviewed for patterns of referral, referral source, co-morbid conditions including mental health issues, treatment recommendations and follow up. Descriptive statistics were used to summarize the results.

#### Results:

Forty-six charts from both sites were identified, with 5 patients excluded who did not meet the inclusion criteria (Figure 1). Forty-one patients were

identified with a median age of 14.5 years (range: 5-21) over the 12-year period. The median level of education was year nine. Forty percent of girls had separated parents similar to the Australian average of 40.5% in 2012 (19).

Of the referred females, 70% perceived their labial size to be interfering with daily activities due to friction or pain. Almost 25% of referrals were initiated by concerned parents (n=10), with five subjects having co-morbid conditions such as intellectual disabilities requiring daily perineal care or intermittent catheterization.

On examination, all females were found to have genital appearances within the normal limits although six girls had some asymmetry and three girls had a maximal labial diameter of more than five cm (normal being 0.7 to five cm in a prospective measurement of women undergoing gynecologic surgery in the United Kingdom) (35). However, only five females had their labia objectively measured.

Referral to a mental health practitioner and clinical ethics committee became standard practice prior to undertaking these procedures in 2009. Thus, mental health data had been recorded for 28 subjects, with seven girls having a diagnosis of depression on self-report and one a diagnosis of body dysmorphic syndrome (as part of a mental health evaluation pre surgery). Overall, three of eight girls with mental health concerns underwent surgery (three of four girls under going surgery compared to five of 24 girls who did not have surgery,  $p=0.6$  Fishers exact test).

Four girls (9.8%) had surgery after a minimum of 5 consultations each during which they were educated on normal variants of labial anatomy (with use of the resource book “Femalia”). It was established consistently that these girls were experiencing ongoing functional impairment (due to friction). Three of these four adolescents were reviewed by psychiatry for assessment of body dysmorphic syndrome prior to surgery. These three cases were also taken to the clinical ethics committee at the hospital to ensure that all aspects of care, including achieving a balance between their mental health distress and the risks of surgery were reviewed. The only female who underwent surgery without mental health assessment or referral to the ethics committee, was an adolescent with spina bifida requiring surgery for labia that interfered with routine self-catherization. She had been reviewed on 3 occasions over a 2-year time span before the decision for surgery was made. The surgical technique employed in all cases was a modified wedge resection. Further explanation of surgical technique is beyond the scope of this article.

Of the remaining paediatric/adolescent females who did not undergo surgery, 87.8% were given reassurance including discussion of the normal variants of labia and use of the resource book “Femalia” (20).

Discussion:

Adolescence is a tumultuous time in a young girls life fraught with conflicts between gaining independence, establishing one's self-image whilst also being responsive to pressures from peers and the media (21). Self-esteem typically declines during the transition from childhood to adolescence, and more so in females than males according to a cohort study (22). Self-esteem then gradually increases as teenagers transition into adulthood, peaking at age 60 (23). Impacting on this are the significant changes that the female body naturally undergoes during puberty (24) and then again with child-bearing and delivery, and finally with the menopausal transition. There is a paucity of research focusing on adolescents and request for cosmetic genital surgery. From the adult cosmetic breast surgery literature there is good evidence that there is an elevated standardized mortality ratio of two due to increased suicide in women post cosmetic breast surgery compared to age matched controls (25).

This retrospective review of referrals demonstrates that close to 20% (8/41) of girls referred with concerns regarding labial appearance had an underlying mental health issue identified. It is possible that the rate is higher than this. The rate of mental health concerns detected in an adolescent survey undertaken in Australia revealed that 14% had experienced significant mental health problems (26). Thus this data suggests that mental health concerns are frequent in this population (one fifth of girls exhibit some mental health distress) and physicians should consider

routine referral for psychological evaluation prior to undertaking this cosmetic procedure.). It is important to note that surgery was only undertaken in those with ongoing local symptoms impairing quality of life.

Some of the limitations to the retrospective review include the lack of specialist psychological or psychiatric assessment for all patients in the cohort. There was only limited follow-up data, with the possibility that some patients may have sought a second opinion or had surgery through a private facility. There was no standard for measuring patient satisfaction following the consultation, and no objective definition of labial hypertrophy. The definitions of normal labial size in the adult literature is limited to 4 studies, but no definitions of the normal range for the paediatric/adolescent population where change is occurring through puberty (27 Michaela L, Koliantzaki S, A Antsaklis. Protruding labia minora: abnormal or just uncool? *J Psychosom Obstet gynaecol* 2011; 32(3):154-156. 28 – Crouch NS, Deans R, Michala L, Kiao LM, SM Creighton Clinical characteristics of well women seeking labial reduction surgery: a prospective study. *BJOG* 2011. 118:1507-1510., 35).

Education regarding the normal appearance of female genitals for both girls as well as their parents and health practitioners is very important. In this review, 24% of mothers were the source of the initial concern regarding the appearance of their daughters genitalia, a rate similar to that found by Dean *et al*, who reported a rate of 15.9% (27). A survey of 164 general practitioners, gynaecologists and

plastic surgeons reported that 90% of physicians believed that a vulva with very small labia minora represented current society's ideal and found that male surgeons were more likely to recommend surgery than female surgeons. Furthermore, there was a statistically significant difference in perception of pictures of the largest labia minora as unnatural by plastic surgeons compared with gynaecologists and general practitioners (28), which illustrates the bias that physicians introduce during a consultation.

The most important point from the study and going forward is that patients and their parents feel that their concerns are heard in a nonjudgemental manner, and receive appropriate non-biased information. In a retrospective study by surgeons from an aesthetic gynaecology unit in Argentina, 41 of 73 (56%) adults seen in consultation regarding the possibility of vulvovaginal surgery did not proceed with surgery after receiving information regarding normal female anatomy and sexuality (29). We do not have outcome data following labial reduction surgery in adolescents nor data on how this may impact future childbirth (30), sexual arousal/satisfaction (31) or the potential rate of repeat surgery should the labia continue to change during puberty (32). The American Congress of Obstetrics and Gynecologists (ACOG), the British Society For Paediatric and Adolescent Gynaecology (BritSPAG), the Royal Australian and New Zealand Society of Obstetricians and Gynaecologists (33) and Society of Obstetric and Gynecology of

Canada (34)) have published statements outlining their position against labioplasty for cosmetic reasons alone, joining the larger international community in questioning the practice. Additionally there remains the question of whether FCGS differs from female genital mutilation (FGM) (Female Genital Mutilation - genital procedures undertaken for nonmedical, cultural reasons). This question continues to be debated in the adult community and a consensus regarding whether labioplasty should be considered FGM has not been drawn yet. Clarity is required in classification of reporting around labioplasty for medical reasons, FCGS for cosmetic reasons, and FGM. The increasing numbers of labioplasty procedures, which are potentially not related to new pathology, but presumably cultural pressures (thus qualify as FCGS) begs the question of whether adolescents can consent to such procedures that are life altering. This topic is fraught with ethical dilemmas and we recommend clinical ethics consultation as a routine prior to surgery.

In conclusion, the increasing requests for labioplasty in young women for cosmetic reasons can be largely managed with education of the young person and their parents. The decision to undertake labial surgery in a mature minor is a difficult one, and should only be considered in the context of ongoing and consistent functional impairment despite counselling and an assessment of the capacity to consent to the procedure. It is best considered with psychological and clinical ethics support. Prospective studies are required to further assess long-term outcomes. As

well, a survey of paediatricians, paediatric surgeons and paediatric gynaecologists regarding their knowledge of their respective Colleges' recommendations, their attitudes and their clinical practice might shed light on how best to educate mature minors.

## Reference

1. Ageing., A. D. o. H. a. Medicare Benefits Schedule item statistics report:Item 35533. Canberra australia. Cited June 26, 2012.
2. Ageing. ADoHa. Medicare Benefits Schedule item statistics report:Item 35533. Canberra australia.
3. Statistics NHSHE. <http://www.hesonline.nhs.uk>. 2015.
4. National Health Service Hospital Episode Statistics.<http://www.hesonline.nhs.uk>. 2010
5. Capraro VJ. Congenital anomalies. Clin Obstet Gynecol. 1971;14(4):988-1012. Epub 1971/12/01.
6. Hodgkinson DJ, Hait G. Aesthetic vaginal labioplasty. Plast Reconstr Surg. 1984;74(3):414-6. Epub 1984/09/01.
7. Runacres S, Hayes J, Grover S, Temple-Smith M. Exposing The Hidden Truth About The Need for Adolescent Labiaplasty. J Paed Adolesc Gynecol. 2015;28(2):e60.
8. Crouch NS, Deans R, Michala L, Liao LM, Creighton SM. Clinical characteristics of well women seeking labial reduction surgery: a prospective study. BJOG : an international journal of obstetrics and gynaecology. 2011;118(12):1507-10. Epub 2011/09/03.
9. Liao LM, Taghinejadi N, Creighton SM. An analysis of the content and clinical implications of online advertisements for female genital cosmetic surgery. BMJ open. 2012;2(6). Epub 2012/11/23.
10. Ellsworth WA, Rizvi M, Lypka M, Gaon M, Smith B, Cohen B, et al. Techniques for labia minora reduction: an algorithmic approach. Aesthetic plastic surgery. 2010;34(1):105-10. Epub 2010/01/01.
11. Oranges CM, Sisti A, Sisti G. Labia minora reduction techniques: a comprehensive literature review. Aesthetic surgery journal / the American Society for Aesthetic Plastic surgery. 2015;35(4):419-31. Epub 2015/04/25.
12. Hamori CA. Postoperative clitoral hood deformity after labiaplasty. Aesthetic surgery journal / the American Society for Aesthetic Plastic surgery. 2013;33(7):1030-6. Epub 2013/09/06.
13. Schick VR, Calabrese SK, Rima BN, Zucker AN. Genital Appearance Dissatisfaction: Implications for Women's Genital Image Self-Consciousness, Sexual Esteem, Sexual Satisfaction, and Sexual Risk. Psychology of women quarterly. 2010;34(3):394-404. Epub 2010/09/09.
14. Bramwell R, Morland C, Garden AS. Expectations and experience of labial reduction: a qualitative study. BJOG. 2007;114(12):1493-9. Epub 2007/09/20.
15. Ageing. ADoHaMBSisrICaCJ, 2012.

16. von Soest T, Kvalem IL, Wichstrom L. Predictors of cosmetic surgery and its effects on psychological factors and mental health: a population-based follow-up study among Norwegian females. *Psychological medicine*. 2012;42(3):617-26. Epub 2011/07/26.
17. Reddy J & Laufer MR. Labiaplasty: Surgical Correction in Adolescents. *The Female Patient*. 2011; 36: 50-53.
18. British Society for Paediatric & Adolescent Gynaecology Position Statement: Labial Reduction Surgery (Labiaplasty) on Adolescents. October 2013
19. <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/27572C439418B7DECA257C2F00109916?opendocument>. Viewed Apr 28/14.
20. Blank J. *Femalia*. Last Gap. 2011. pg 72.
21. Arnett JJ. Adolescent storm and stress, reconsidered. *The American psychologist*. 1999;54(5):317-26. Epub 1999/06/04.
22. Orth U, Trzesniewski KH, Robins RW. Self-esteem development from young adulthood to old age: a cohort-sequential longitudinal study. *Journal of personality and social psychology*. 2010;98(4):645-58. Epub 2010/03/24.
23. Orth U, Robins RW, Widaman KF. Life-span development of self-esteem and its effects on important life outcomes. *Journal of personality and social psychology*. 2012;102(6):1271-88. Epub 2011/09/29.
24. Colvin CW, Abdullatif H. Anatomy of female puberty: The clinical relevance of developmental changes in the reproductive system. *Clin Anat*. 2013;26(1):115-29. Epub 2012/09/22.
25. Lipworth L, McLaughlin JK. Excess suicide risk and other external causes of death among women with cosmetic breast implants: a neglected research priority. *Current psychiatry reports*. 2010;12(3):234-8. Epub 2010/04/29.
26. Sawyer MG, Kosky RJ, Graetz BW, Arney F, Zubrick SR, Baghurst P. The National Survey of Mental Health and Wellbeing: the child and adolescent component. *The Australian and New Zealand journal of psychiatry*. 2000;34(2):214-20. Epub 2000/05/02.
27. Deans R, Liao LM, Crouch NS, Creighton SM. Why are women referred for female genital cosmetic surgery? *The Medical journal of Australia*. 2011;195(2):99. Epub 2011/07/21.
28. Reitsma W, Mourits MJ, Koning M, Pascal A, van der Lei B. No (wo)man is an island--the influence of physicians' personal predisposition to labia minora appearance on their clinical decision making: a cross-sectional survey. *The journal of sexual medicine*. 2011;8(8):2377-85. Epub 2011/05/21.
29. Marchitelli CE, Sluga MC, Perrotta M, Testa R. Initial experience in a vulvovaginal aesthetic surgery unit within a general gynecology department. *Journal of lower genital tract disease*. 2010;14(4):295-300. Epub 2010/10/05.

30. Goodman MP, Placik OJ, Benson RH, 3rd, Miklos JR, Moore RD, Jason RA, et al. A large multicenter outcome study of female genital plastic surgery. *The journal of sexual medicine*. 2010;7(4 Pt 1):1565-77. Epub 2009/11/17.
31. Michala L, Koliantzaki S, Antsaklis A. Protruding labia minora: abnormal or just uncool? *Journal of psychosomatic obstetrics and gynaecology*. 2011;32(3):154-6. Epub 2011/06/24.
32. Lynch A, Marulaiah M, Samarakkody U. Reduction labioplasty in adolescents. *Journal of pediatric and adolescent gynecology*. 2008;21(3):147-9. Epub 2008/06/14.
33. RANZCOG guidelines, Labiaplasty: Surgical Correction in Adolescents, Female Genital Cosmetic Surgery No 300 Dec 2013
34. Shaw D, Lefebvre G, Bouchard C, Shapiro J, Blake J, Allen L, et al. Female genital cosmetic surgery. *Journal of obstetrics and gynaecology Canada : JOGC = Journal d'obstetrique et gynecologie du Canada : JOGC*. 2013;35(12):1108-14. Epub 2014/01/11.
35. Lloyd J, Cruoch N, Minto C, JM Liao L, Creighton S, Female Genital Appearance: Normality Unfolds: *BJOG*. 2005; 112(5): 643-646.

