

## Reduction Mammoplasty for the Teenage Patient: A Critical Analysis

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**Abstract.** Despite relatively few complications with reduction mammoplasty, there has been some hesitance to perform the procedure on the teenage patient. To examine the questions about teenage reduction, 16 teenage female patients were evaluated, all undergoing a modified McKissock technique. Followup averaging 42 months was obtained on 15 patients. Two complications were recorded. Subjective nipple sensation was the same or increased in 60% of our patient group. All patients were satisfied with their surgical results and relief of symptoms. The study revealed that reduction mammoplasty is a safe, viable surgical option for the adolescent female. Psychological, physical, and emotional symptoms are relieved.

**Key words:** Breast reduction—Adolescent females—Modified McKissock technique

A variety of techniques have been developed for reduction mammoplasty [1-3,5,9-15,18-20,22-27,29-31,33-36,38]. Despite the variations in methodology, complications have been few [1,8,15,16,28,32,34,36,37]. In spite of these low complications and overall patient satisfaction [4,17], there has been some hesitance to perform this procedure on teenage patients. Contributing to this reluctance are questions concerning breast feeding, breast changes after future pregnancy, sensory alterations, and future mammographic evaluation. Hormonal changes during puberty may also influence results. To address some of these questions, this study examines the results of reduction mammoplasty in the pubescent female. It is our belief that these concerns may be somewhat exaggerated and

that overall results of reduction mammoplasty performed in the teenage years may be the same as for the older patient.

### Materials and Methods

Sixteen teenage female patients underwent reduction mammoplasty at the Children's Hospital between 1981 and 1991. All patients studied were limited to the age of 20 years or less. The mean age of the patients was 17.7 years (range 14-20). Any patient older than 20 years was not included in the study group.

All patients underwent a modified McKissock technique. This procedure has been well described elsewhere and is not discussed here. All operative procedures were performed by the same surgeon (JR). Patients remained hospitalized from one to three days postoperatively. Followup was obtained by direct examination and telephone questionnaire.

### Results

Followup was obtained on 15 of the 16 patients. One patient had moved from the area and no long-term results could be obtained. Followup averaged 42 months (range 22-90 months).

The mean resection weight was 379 g (range 210-708 g), 389 g (15-1134 g), and 768 g (450-1601 g) for the right, left, and total breast weight, respectively (Table 1).

Fifty percent of the patients received one autotransfusion during their operative procedure. The average blood loss per surgery was 211.4 cc.

Back, shoulder, or neck pain was the most common presenting sign or symptom (100%). Other preoperative signs and symptoms leading to reduction mammoplasty are listed in Table 2.

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**Table 1.** Results of reduction mammoplasty on 16 teenage females

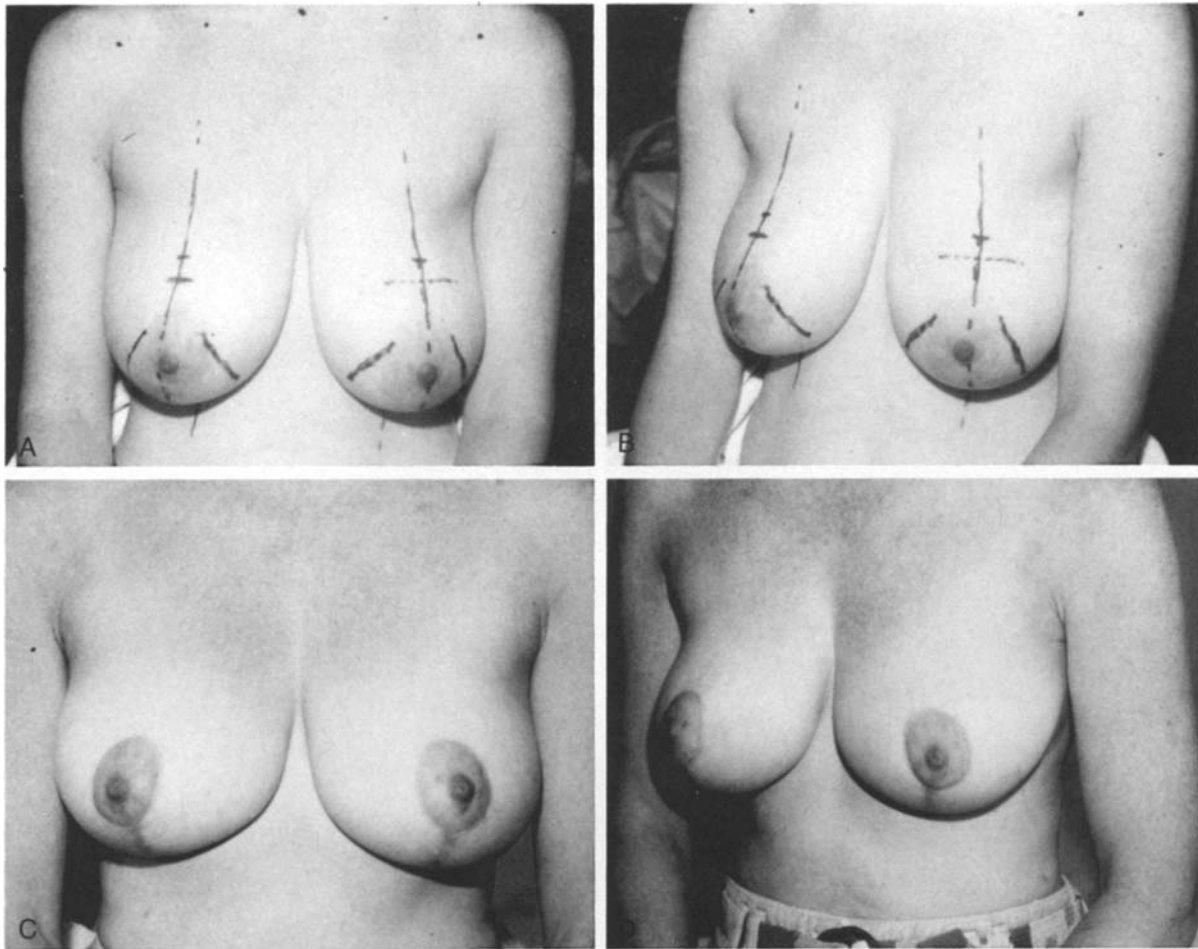
Patient	Age	Tissue removed (g)	Blood used	Followup (months)	Complication	Nipple sensation
(1) EG	20	R-300 L-150 T-450	1 Auto	90	None	Same
(2) TK	17	R-300 L-260 T-560	1 Auto	87	None	Decreased
(3) BH	17	R-360 L-320 T-680	None	57	None	Decreased
(4) BG	17	R-210 L-308 T-518	1 Auto	51	None	Same
(5) AS	18	R-467 L-1134 T-1601	None	46	None	Same
(6) DW	18	R-225 L-225 T-450	1 Auto	Unknown	Hematoma	Unknown
(7) LD	18	R-321 L-281 T-602	1 Auto	39	None	Decreased
(8) MH	17	R-506 L-512 T-1018	None	38	None	Same
(9) AK	20	R-327 L-288 T-615	None	37	None	Same
(10) HH	19	R-325 L-515 T-840	1 Auto	35	None	Increased
(11) CB	14	R-708 L-450 T-1158	1 Auto	35	None	Same
(12) JS	18	R-308 L-308 T-616	None	24	None	Decreased
(13) SH	17	R-298 L-216 T-514	None	24	None	Increased
(14) KZ	19	R-342 L-304 T-646	None	23	None	Increased
(15) JG	16	R-458 L-481 T-939	None	22	Recurrent hypertrophy	Decreased
(16) LM	18	R-609 L-476 T-1085	1 Auto	22	None	Decreased

Two complications occurred in the 16 patients. One hematoma formation forced reoperation for drainage three days after the initial procedure. Unfortunately, this patient has subsequently moved from the area and long-term followup could not be obtained. The second complication involved recurrent breast hypertrophy which presented 13 months after the initial procedure. This patient has had reoperative surgery.

None of the 15 patients followed for more than 13

**Table 2.** Presenting signs and symptoms

Clothes did not fit	1
Neck, shoulder, back pain	16
Ptosis	1
Asymmetry	4
Rash	3
"Heaviness" to breasts	3
Shoulder notching	3



**Fig. 1.** Case 1: Eighteen-year-old patient with modest macromastia and ptosis. Transverse breast dimension of 15 cm and a rather slender and petite thoracic configuration. (A,B) Preoperative markings, frontal view and oblique view. (C,D) One-year postoperative frontal and oblique views. The thoracic-to-nipple distance for the breast projection was about 9 cm, giving her a desirable conical shape.

months has become pregnant. Breast feeding could not be assessed in this study group. Three other patients who did not meet our age criterion between 1985 and 1991 have become pregnant with the same operative technique performed. These three patients were all under the age of 29 and were able to produce milk for breast feeding if they chose to do so.

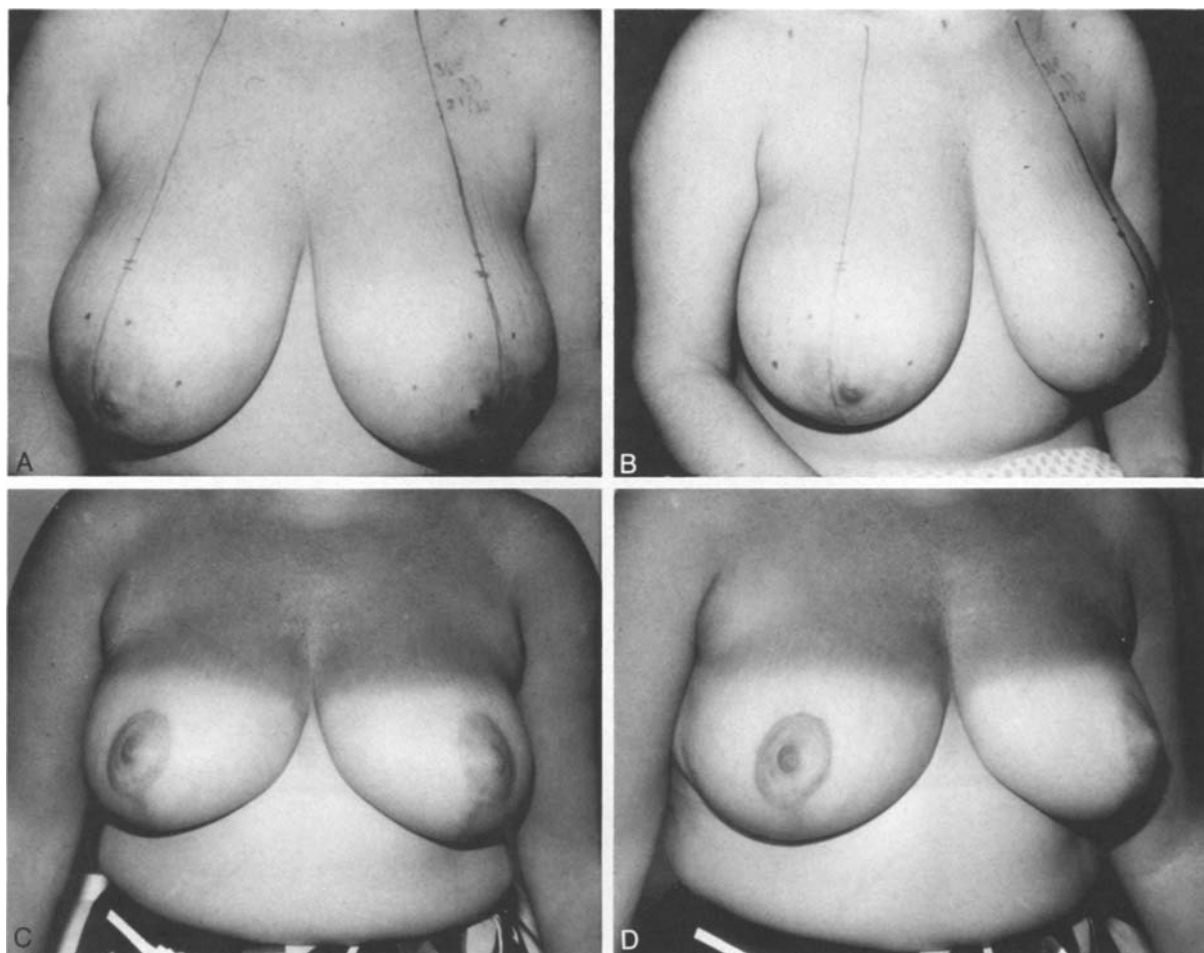
Nipple sensation was subjectively evaluated and noted to be the same in six, increased in three, and decreased in six. Despite a decrease in these six patients, the overall subjective response was favorable in all 15 patients. All stated that they were pleased with the results and would have the procedure performed again. Figures 1–3 show three case results.

## Discussion

The role of reduction mammoplasty in the adolescent patient has not been well-defined. Concerns of mam-

mographic alterations, ptosis following pregnancy, and hormonal fluctuation have provoked a cautious course in this operative therapy [7,21]. To assess these factors in teenage reduction mammoplasty, 16 patients were reviewed from 1986 to 1991. All procedures were performed by the same surgeon (JR). A modified McKissock technique was used in all patients. This procedure appears to be the most reliable in our hands.

Fifteen patients were able to be evaluated with followup up to 81 months. Two complications were noted: One resulted three days postoperatively with the occurrence of a breast hematoma. Resolution required drainage and an extended course of intravenous antibiotics. Long-term followup was not possible because the patient relocated out of the area. The second complication involved recurrent breast hypertrophy beginning 13 months postoperatively. Recurrent surgery was necessary. Despite these two complications, overall success with adolescent reductions has been excellent. Nipple sensation was unchanged or in-



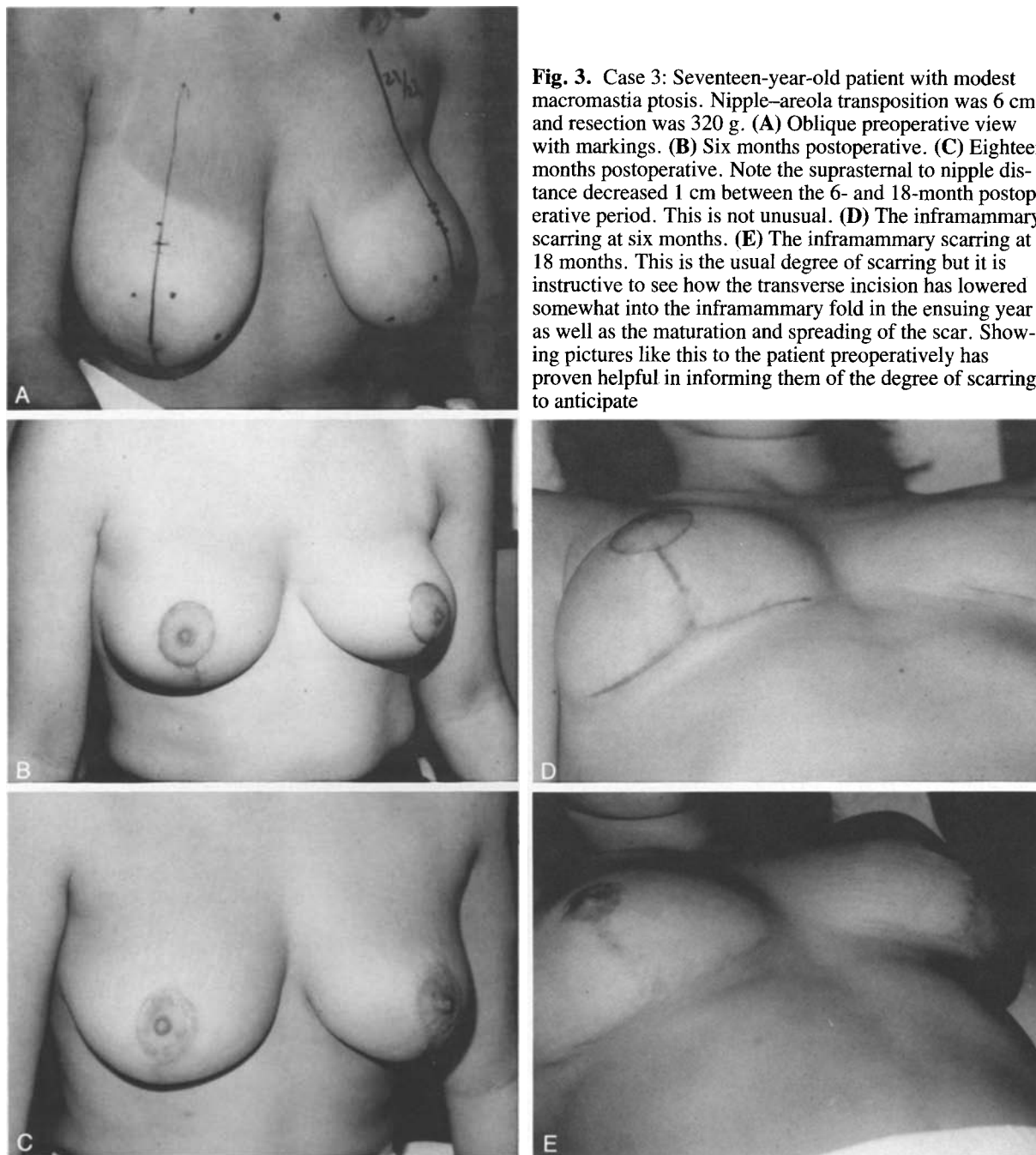
**Fig. 2.** Case 2: Nineteen-year-old modestly endomorphic patient with a broad thoracic configuration, some 21 cm transverse frontal breast dimension. (A) Frontal preoperative marking for a 9-cm nipple–areola transposition, 36DD brassiere size. (B) Preoperative oblique view. (C) One-year postoperative frontal view. (D) One-year postoperative oblique view. Breast projection is about 9 cm, the nipple–areola measured from the anterior thoracic platform. However, the breast width exceeds this by a factor of 2 and the breast appears somewhat more flat with less conical projection. Using this technique, it is rare to attain a nipple projection exceeding 9–10 cm. Thus, the patient's thoracic and breast width have a major determining role in the breast shape and appearance following this reduction technique.

creased in 60% of the patients. This is equivalent to that reported in the literature [1–3,5,8–16,18–20,22–38]. The young age of our patients has unfortunately prevented evaluation of breast feeding or milk production following reduction.

Several additional observations were noted in the study group. Fifty percent of the patients received autotransfusions. For all eight of these patients, one unit of donated blood was given. There was no correlation between the transfusion and the amount of blood lost or the amount of tissue resected. Recently, no autotransfusions have been used. It is believed this trend is for three reasons: (1) Despite autodonation, transfusions still carry a risk for reactions and transmission of diseases (primarily due to laboratory error). (2) As Brantner and Peterson [6] have shown, the use of vasoconstrictors has controlled blood loss in reduc-

tion mammoplasty. Implementation of vasoconstrictor therapy increased toward the later years of the study. (3) In this cost-containment era, the necessity for routine typing and cross-matching is superfluous.

Among the major personal concerns in the teenager can be the scarring involved with reduction mammoplasty (Fig. 3D,E). Preoperatively, this is often the greatest concern of the patient. Nursing and sensory alterations fall a distant second and third behind scar formation. Exposure of the patient to a realistic range of scarring has been particularly helpful. Three patients elected to defer surgery because they were unwilling to accept the magnitude of scarring presented in photos taken one to two years following reduction mammoplasty. Informing the patient of the many months of scar maturation is beneficial. Following the operation, patients are followed at six-week to three-



**Fig. 3.** Case 3: Seventeen-year-old patient with modest macromastia ptosis. Nipple-areola transposition was 6 cm and resection was 320 g. (A) Oblique preoperative view with markings. (B) Six months postoperative. (C) Eighteen months postoperative. Note the suprasternal to nipple distance decreased 1 cm between the 6- and 18-month postoperative period. This is not unusual. (D) The inframammary scarring at six months. (E) The inframammary scarring at 18 months. This is the usual degree of scarring but it is instructive to see how the transverse incision has lowered somewhat into the inframammary fold in the ensuing year as well as the maturation and spreading of the scar. Showing pictures like this to the patient preoperatively has proven helpful in informing them of the degree of scarring to anticipate

month intervals to assess the quality of scarring. In the event that hypertrophic scarring begins, topical steroid treatment, with cream or ointment, one to three times daily is helpful. No patient in this series underwent surgical scar revision.

The timing of intervention in the teenage patient with macromastia is important. The authors would

prefer to see no further progressive enlargement for a two-year interval prior to surgery. This will usually take the patients into their later teen years, 18 or older. Nonetheless, on occasion, the enlargement can be of such disfiguring proportions that any surgery needs to be considered sooner. In one case in which there was postoperative hypertrophy, the patient's breast en-

largement decreased in the year proceeding surgery; however, she had not had the ideal of two years of nonenlargement. In the event that breast size has not been stable in this preoperative interval, preoperative discussion of possible postoperative enlargement is necessary. Postoperative exposure to new hormonal preparations can also result in considerable breast enlargement.

The assessment of benefits attending reduction mammoplasty are, of course, most personal. Nonetheless, in this series, the patients themselves, and in many cases their parents, readily expressed the marked increase in comfort with physical activity. These benefits seemed at least of the magnitude seen in older patients and perhaps to some degree even more marked.

Adolescence can be a difficult time for teenagers. The fluctuations of hormonal levels influence the psychological growth of the patient. Birtchnell et al. [4] assessed the motivational factors in patients seeking reduction mammoplasty. These include a desire to buy stock-sized clothes, to wear swim or sportswear, and to feel more confident and feminine, and more attractive. Patients are subject to teasing and are embarrassed to undress [4]. All of these factors have been noted in the study group. Some are accentuated by adolescence and the school environment. Symptoms of back, shoulder, and neck pain have been noted. Shoulder notching is common. All contribute to a patient's motivation for surgery. Frequently, not only is the physical pain relieved with surgery, but many of the psychological factors as well.

The study group has shown that reduction mammoplasty is a safe, viable surgical option for the adolescent female. Patients should be willing to accept possible nipple sensory loss and possible decreased ability to breast feed. Despite these side effects, patients are pleased with the results psychologically and emotionally. Overall, the consideration of reduction mammoplasty in the teenage patient seems to be an entirely reasonable one. The limitations and possible problems need to be detailed, but, in general, it is the belief of the authors that the procedure is every bit and perhaps more beneficial in this age group as in the older patient population.

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