

Correcting the Tuberous Breast Deformity by the Moufarrege Total Posterior Pedicle: An Architectural Reconstruction

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ABSTRACT

Tuberous breast deformity is a common congenital breast anomaly that remains one of the most challenging deformities to correct in plastic surgery. It is characterized by a large areola with a cupola deformity, a short breast lower segment, a “nosing down” of the breast, and a narrowness of the breast implantation base. The classification and surgical treatment of this pathological condition have varied extensively. The Total Posterior Pedicle breast reduction technique, described by Richard Moufarrege in 1982, is an effective corrective surgery for treating this often insightful and rebellious deformity. It consists of dissecting the skin away from the breast tissue offering free access to all breast quadrants. This technique is known for its robust blood supply to the nipple areolar complex, the preservation of the nipple areolar complex sensation, and for the conservation of the breastfeeding function. In this article, we also elucidate the reasons why the Moufarrege Total Posterior Pedicle breast reduction technique corrects all the vicious details inherent to the tuberous breast.

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1- INTRODUCTION

The correction of tuberous breasts has always been a source of concern for plastic surgeons. This deformity used to lead and still leads surgeons to resort to complex gestures that are more or less precise; their general purpose is elongating the third segment of the breast, which, by its short length, constitutes a main element in the inherent deformity of the tuberous breast, but not the only one (1,2).

The tuberous breast is characterized by its 5 main features (3–5). The first feature is its inordinate areolar dimension, which can occupy a surface 5 to 20 times the usual areola surface (fig. 1). The second is the areolar bulging, providing the areola with a cupola relief which includes a large amount of glandular tissue (fig. 2). The third consists in the shortening of the segment III of the breast, that is to say in a short distance between the areola and the infra-mammary fold (fig. 3). The fourth is the abnormal downward tilt of the breast, in a movement that can be described as « nosing down » (fig. 4). The fifth is the narrowness of the breast implantation base. There exist variants in which one of the features is preponderant. One of the features could also be less obvious

than others. On another hand, cases with the combination of all 5 features are not exceptional (fig. 5). There are as much classifications as authors who addressed the subject of Tuberous breasts (6–8). These classifications depend on demographic characteristics of each study’s treated patients. This explains the multiplicity of the proposed solutions.

2- CLASSIFICATION

Our classification consists in the declension of these 6 types of tuberous breast:

- a- Tuberous breast with predominance of the large areola surface.
- b- Tuberous breast with predominance of the cupola deformity.
- c- Tuberous breast with predominance of the short segment III.
- d- Tuberous breast with predominance of the nosing down.
- e- Tuberous breast with predominance of the narrow implantation base.
- f- Tuberous breast with the combination of one or more of these five deformities.

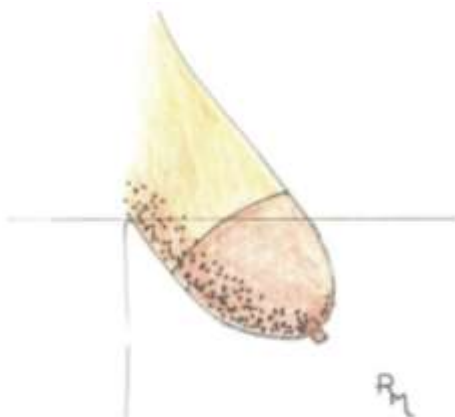


Figure 1: Tuberous breast: predominance of large areola.

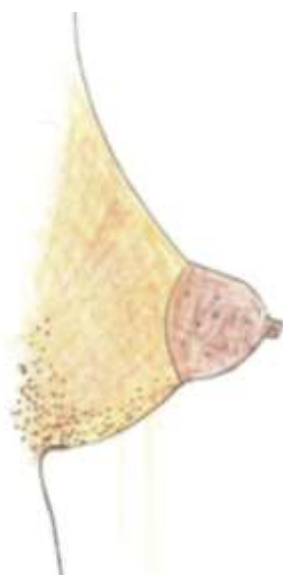


Figure 2: Tuberous breast: predominance of the cupola.

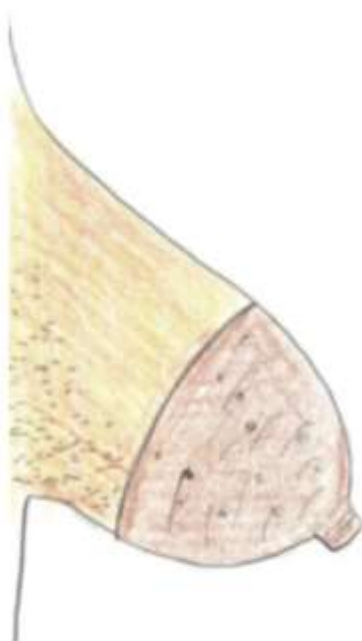


Figure 3: Tuberous breast: predominance of the short segment III.



Figure 4: Tuberos breast: predominance of the nosing-down deformity.



Figure 5: Tuberos breast: combination of the five deformities

3- TRADITIONAL CORRECTION OF THE TUBEROUS BREAST

Among all the traditional techniques that are used in tuberous breast correction, none presents the option of disengaging the skin from the gland (3,9,10). The intimate relationship between these two structures participates in the typical deformity of the tuberosity: the inherent particular shape of the tuberous breast is represented by the relief that we know of this deep deformity, namely in the gland but also in its covering skin. We believe that attempting to correct the tuberous deformity without undoing its typical shape is doomed to an incomplete correction. Most of the suggested traditional techniques aim to lengthen the third segment but have no impact on the inherent shape of the pathology in the nipple-areola complex region. Furthermore, omitting to disengage the skin from the underlying gland leads to the

persistence of the inherent deformity of the tuberous breast with the typical cupola, despite the correction of one very crucial feature of tuberous breast, namely the dimension of segment III. This can be called *the persistence of the tuberosity's print*.

4- CORRECTION OF THE TUBEROUS BREAST USING THE TOTAL POSTERIOR PEDICLE

Correcting all features of tuberous breast needs to treat five aspects defining the deformity: the nosing down character, the short segment III vertical dimension, the areola cupola character, the large areola, and the narrow breast base.

Contrary to other known techniques, the correction by the Total Posterior Pedicle constitutes a complete gesture allowing us to simultaneously treat all vicious details inherent to the tuberosity (11,12).

Correcting the Tuberos Breast Deformity by the Moufarrege Total Posterior Pedicle: An Architectural Reconstruction

In addition to the lengthening of segment III, correction by the Total Posterior Pedicle eliminates the part of skin participating in the deformity and transposes the nipple-

areola complex in a region of skin completely free of the deformity (fig. 6).



Figure 6: Transferring the areola in a flat area not subject to the dome-deformity

Treating the nosing down

To illustrate the nosing down deformity correction, we will use the purest geometrical form to simulate the tuberous breast: the inclined cone serves as a schematic matrix for the breast (fig. 7). To effectively correct this problem,

straightening the inclined cone is necessary (figs. 8). In fact, in order to schematically simulate the nipple-areola complex, the matrix will rather be represented by a truncated cone with the circle at the apex of the cone corresponding to the areola (fig. 9).

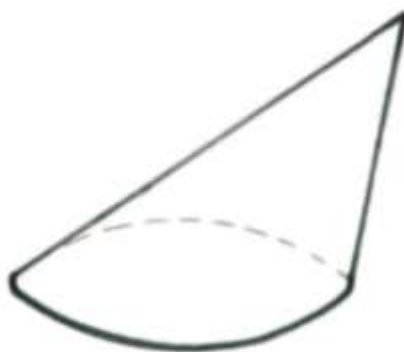


Figure 7: Tuberous breast: the inclined cone image.

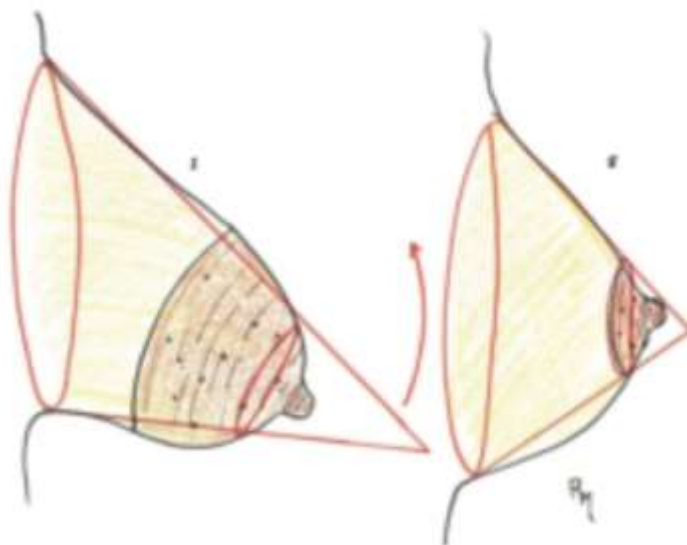


Figure 8: The inclined cone as a matrix for the tuberos breast. On the right, the desired correction.



Figure 9: Tuberos breast: the breast is better represented by a cone trunk; the smaller extremity simulates the Nipple Areola Complex (NAC).

To straighten the trunk of the inclined cone, we proceed as follows. We draw a triangle on the trunk of the shortest inclined side. This triangle has its base at the level of the smaller circle (representing the areola area), and its apex at the level of the bigger circle (representing the implantation base of the breast) (fig. 10). The delineated triangle is

subtracted from the trunk of the cone; the ends at the base of the resected triangle are brought close to each other. This results in a straightening of the trunk of the inclined cone (fig. 11). The larger the resection base of the resected triangle, the more efficient the straightening of the resulting cone (figs. 12 and 13).

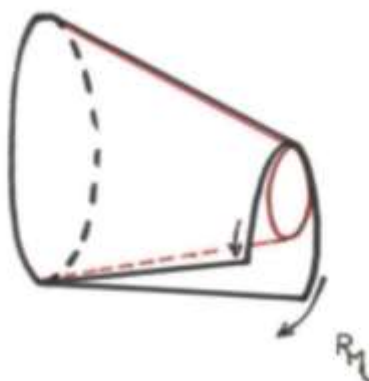


Figure 10: Straightening the inclined cone trunk: withdrawal of a triangle.

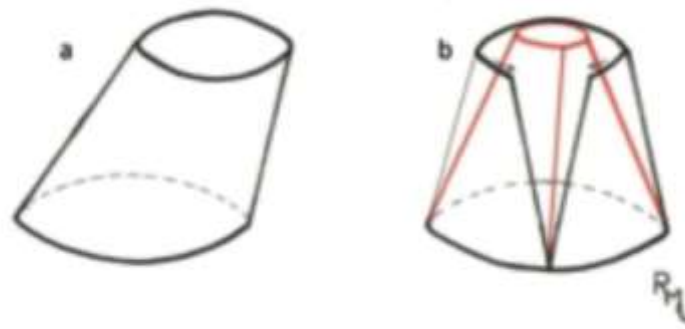


Figure 11: The inclined cone trunk: withdrawal of a triangle and joining of the two extremities of the triangle base will straighten the structure.

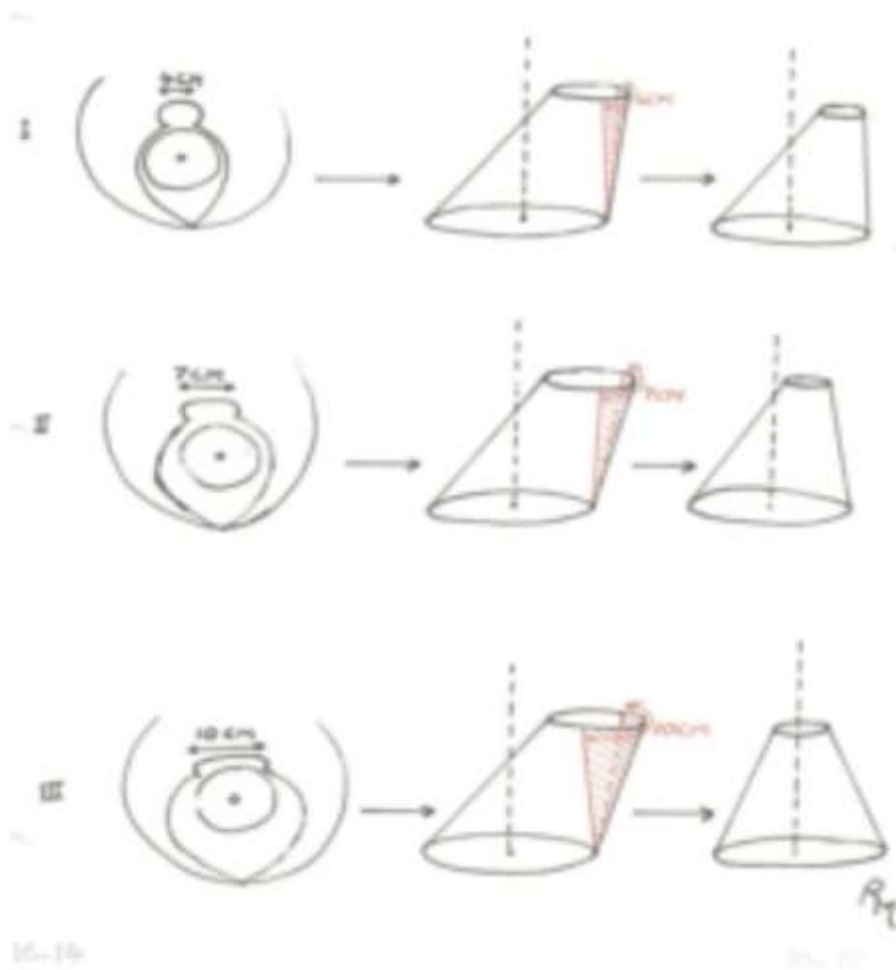


Figure 12: This drawing shows the effect of the resected base width on straightening of the inclined cone trunk. The larger the base, the more efficient the straightening.

Correcting the Tuberos Breast Deformity by the Moufarrege Total Posterior Pedicle: An Architectural Reconstruction

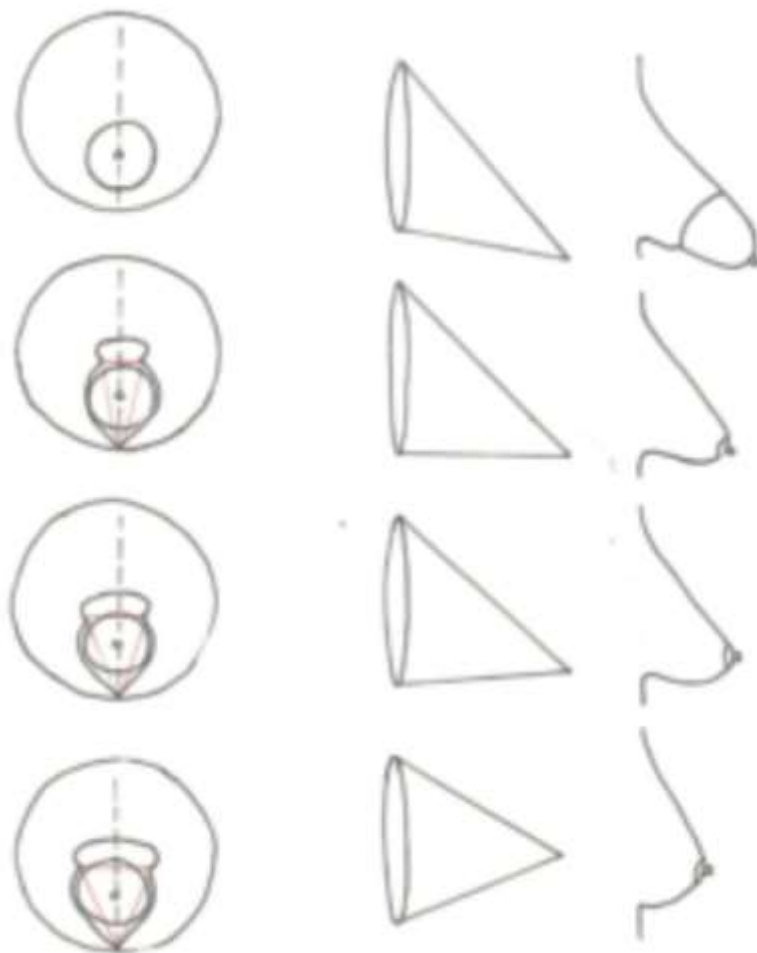


Figure 13: This drawing represents the correction of the nosing down depending on the width of the resected triangle's base.

It is exactly this way the tuberous breast correction by the Total Posterior Pedicle will adopt to achieve the straightening of the deformed cone. When transposed to the real tuberous breast, the triangle to be subtracted is represented by the skin to be resected (fig. 14). Here again, one can see that the larger

the triangle base, the straighter the breast cone. The straightening of the inclined cone by that mean allows us to achieve indirectly another goal in the Tuberous Breast correction, which is the new areola diameter reduction by the top circumference of the truncated cone shortening.

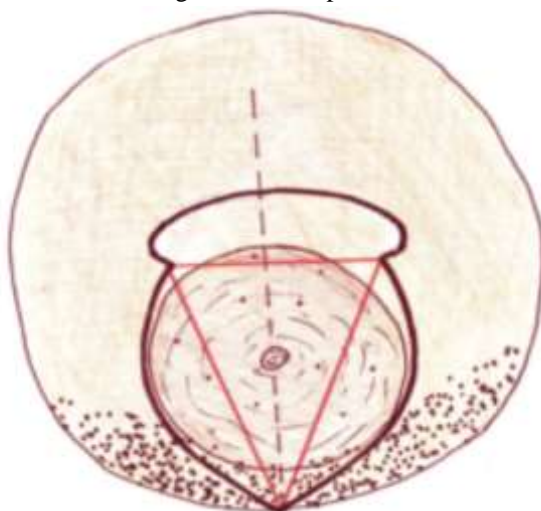


Figure 14: The triangle resection is represented in this drawing as the surface of skin to be resected in the Moufarrege Total Posterior Pedicle applied to the Tuberous Breast.

Correcting the Tuberous Breast Deformity by the Moufarrege Total Posterior Pedicle: An Architectural Reconstruction

Lengthening the Segment III

The very essence in the Moufarrege Total Posterior Pedicle resides in its principle to separate the breast gland from the covering skin (12). This allows the exposed gland to be sculpted at will and to cut and trim the surrounding skin lining it. By appreciating the way the drawings are made in

anticipation of skin cutting, one can understand that the length of the keyhole arms, which will become the vertical infra-areolar incision, will be easily over 6 cm and perhaps even much more (figs. 15 and 16).

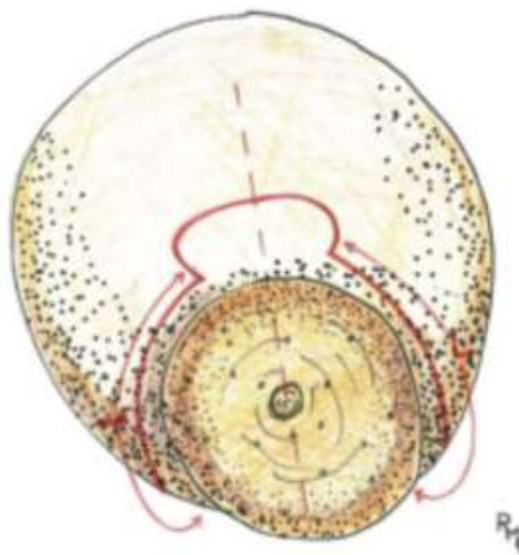


Figure 15: The nature of the Total Posterior Pedicle technique guarantees lengthening of segment III. The latter is the result of the joining of the two keyhole arms (represented by the letter L on the drawing) one against the other. This will constitute the vertical sub- areolar incision, i.e. the segment III length.



Figure 16: This drawing shows the transformation of the very short segment III length (represented by the letter I) compared to the final length (represented by the letter L).

Reducing the areola diameter

As in all techniques meant to correct Tuberous Breast deformity, the peri-areolar incision will be performed with a 4 cm diameter circle.

The difference between the other existing techniques and the one we present is the way the areola will react with time: classical known techniques will bring centrifugal skin tensions to widen progressively the areola. The Total

Correcting the Tuberos Breast Deformity by the Moufarrege Total Posterior Pedicle: An Architectural Reconstruction

Posterior Pedicle will avoid that widening because of the absence of centrifugal forces (13,14).

Eliminating the Cupola shape

The cupola is a shape induced on the Tuberos breast areola by two anatomical structures: the gland and the dermis. One can realize the relative importance of these two structures in the cupola deformity by removing all the areola dermis surrounding the 4 cm diameter of areola to be kept. As soon as dermis is resected, the underneath gland shows no resistance and loses a big part of the cupola character (figs. 17 and 18). On another hand, if one removes the skin collar

of the areola by separating it from the gland without interrupting its circular continuity and places it on a horizontal surface, he can notice that it conserves most of its shape (fig. 19). If we resect the full thickness of the skin collar constituting the cupola without interruption of its continuity and put it on the table, we would observe a certain rigidity of the piece under study. It conserves its volume, even if partial. This confirms that the dermis is partially responsible for the cupola memory. As we entirely remove the dermis surrounding the conserved areola, we automatically eliminate at least a part of the typical cupola memory of the Tuberos breast.

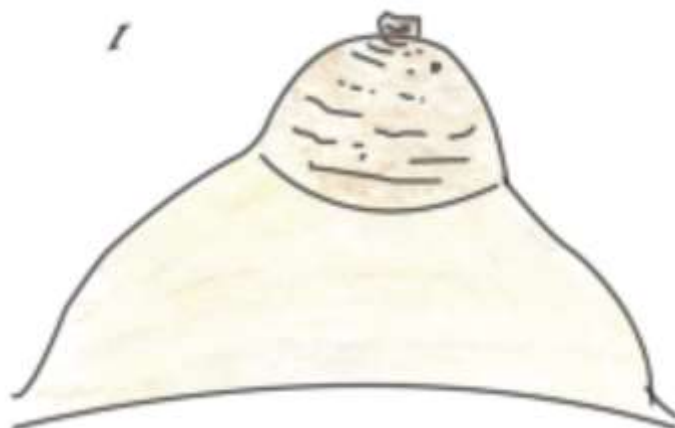


Figure 17: The cupola print before correction and skin resection.



Figure 18: After resection of the full thickness skin in the areola, the remaining exposed sector of the gland which was a part of the cupola deformity has lost its firmness and has become less obvious.

Correcting the Tuberous Breast Deformity by the Moufarrege Total Posterior Pedicle: An Architectural Reconstruction



Figure 19: If we resect the full thickness of the skin collar constituting the cupola without interruption of its continuity and put it on the table, we would observe a certain rigidity of the piece under study.

5- OPERATIVE TECHNIQUE

As it has been described in the Moufarrege Total Posterior Pedicle reduction, the axis of the breast, and the point which will be the superior pole of the areola are designed; the keyhole as designed by Moufarrege is drawn with the large axis of the ellipse positioned horizontally. The keyhole arms are then drawn which will have an angle of 90° to 180° between them, according to the rules in relation with the 3 ptosis grades (13,15) (fig. 20).

The arms of the keyhole will circle the breast as in the reduction and the classic lifting using the Total Posterior Pedicle, in the manner of two meridians of the globe and will join on the sub-mammary fold. It must be understood that

these 2 arms, once joined in a single line, will constitute the infra-areola vertical scar and will, by their presentation and the local geography, have a length that can go up to 6-10 cm or more.

We designate an areola 4 cm in diameter in the large existing areola complex and we resect all the excess skin between the arms of the keyhole and the part of the areola to be retained. We do not keep dermis as we usually do in the reduction or the regular lifting. Removing the dermis of the exaggeratedly convex areolar cupola in the tuberous breasts is of capital importance in the non-reproduction of the shape of this dome, the dermis being able to endow the tuberous breast with a certain degree of memory of the old form.

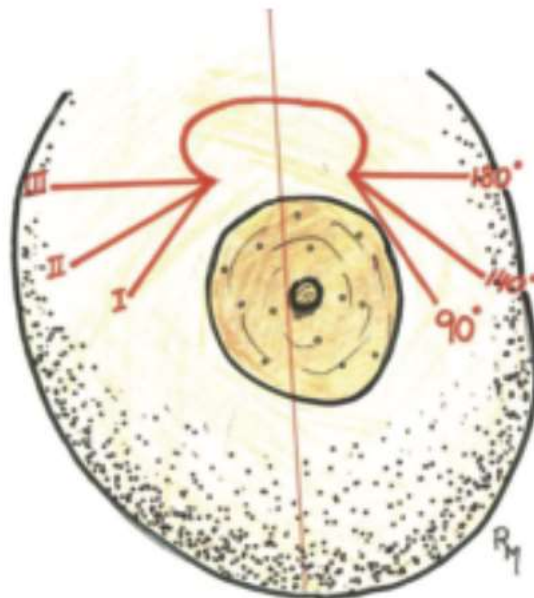


Figure 20: The three categories of ptosis (the inclination in the case of the tuberos breasts) with the three angles between the keyhole arms.

Once the skin resection completed, the inner, outer and upper flaps are lifted in the subcutaneous plane by shaving the mammary gland and keeping all the subcutaneous tissue against the skin, as in breast lifting (fig. 21). This undermining must extend to the extremities of the breast, paying particular attention to the areolar tissue at the end of the gland on the lateral wall of the thorax in order to avoid interrupting the intercostal nerves IV, V and VI responsible for the erogenous sensation of the nipple as well as the muscular contraction of the nipple.

The cut areola is positioned with its 4 cm diameter in its new location in the keyhole, starting by anchoring the upper pole at 12 o'clock. Then, the lower border of the areola is anchored against the ends of the curved line of the keyhole at 6 o'clock with stitches on the dermis (fig. 22). The reconstitution is continued by joining the outer and inner cutaneous flaps one against the other on the vertical sub-nipple line (fig. 23), which will be long enough to give a minimum distance of 6 cm between the bottom of the areola and the sub-mammary line. If this line exceeds 6 cm, it will be shortened to 6 cm by transforming its lower end into an inverted T. (fig. 24)

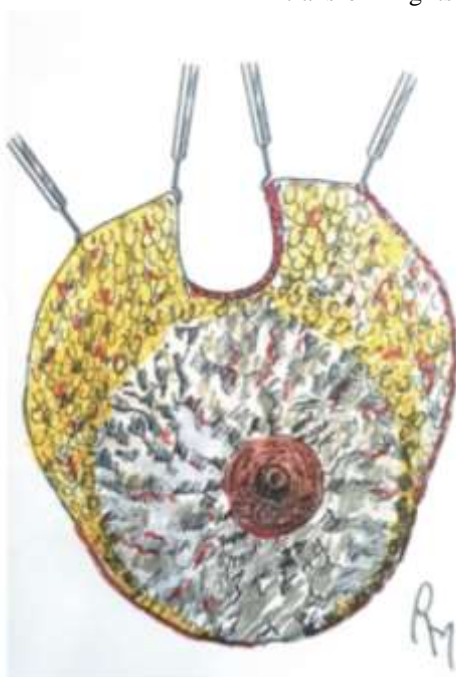


Figure 21: Undermining of the skin on the entire frontal aspect of the breast.



Figure 22: Placing the areola in its new position with an inverted stitch at 12 o'clock and 6 o'clock

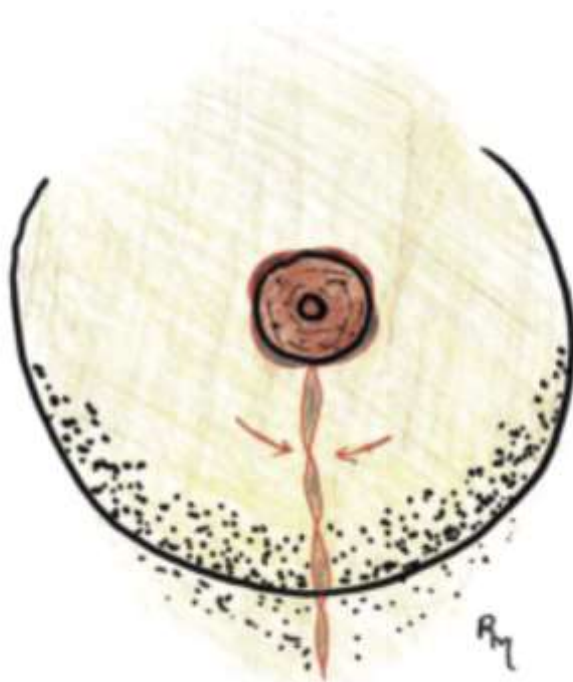


Figure 23: Joining the two lateral and inner flaps on the vertical line.

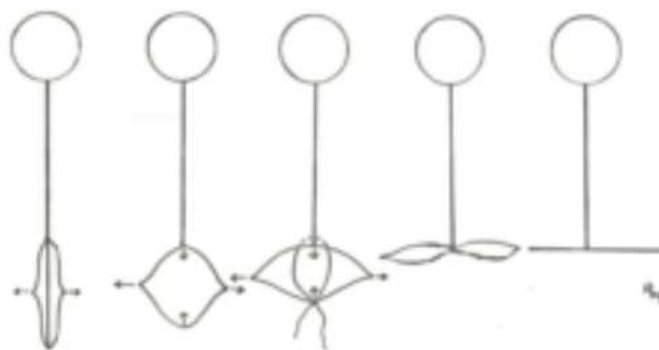


Figure 24: Transforming the two long vertical line into an inverted T.

6- DISCUSSION AND CONCLUSION

The correction of the tuberous breast by the Total Posterior Pedicle makes it possible to elegantly provide solutions to the five vicious characters of the tuberous breast. The size of the areola is reduced to a 4 cm diameter set in a keyhole cut and having no force of centrifugal tension on the areola, avoiding the typical areola enlargement. The tendency of the areola to bulge is counteracted by the release of the skin from the underlying gland, the removal of the areola dermis in excess, and the transfer of the nipple-areola complex to a region of skin not subjected to the tuberous breast typical dome deformity. The vicious inclination of the truncated cone forming the breast “nosing-down” is corrected by the transformation of the inclined cone into a more orthogonal

cone. The very short segment III in the tuberous breast, which is the essential element to be treated in traditional techniques, is elongated by the length of the keyhole arms which end up giving a segment III length of more than 6 cm.

Finally, tuberous breast treatment by the Moufarrege Total Posterior Pedicle is certainly the most complete and effective corrective surgery for treating this often insightful and rebellious deformity.

We understand automatically that the nature of this procedure is not only to straighten the trunk of the inclined cone correcting the vicious tendency of the tuberous breast to “nosing-down” deformity, but also, to lengthen the segment III of the breast, eliminate the cupola in the areola, create and conserve a constant reduced areola surface (Figs 25-28).



Figure 25: 6-month follow-up: combination of large areola and short segment

Correcting the Tuberos Breast Deformity by the Moufarrege Total Posterior Pedicle: An Architectural Reconstruction



Figure 26: 18-month follow-up: combination of hypertrophy, large areola and nosing-down deformity

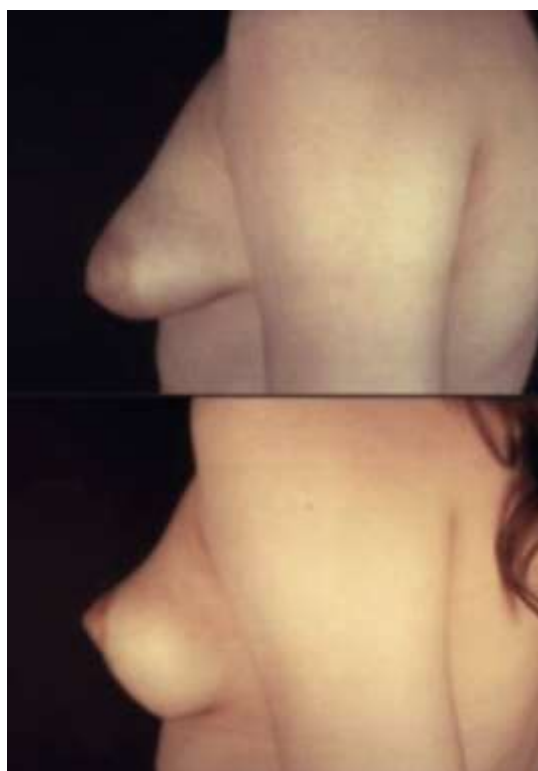


Figure 27: 1-year follow-up: combination of large areola, short segment III and nosing-down deformity

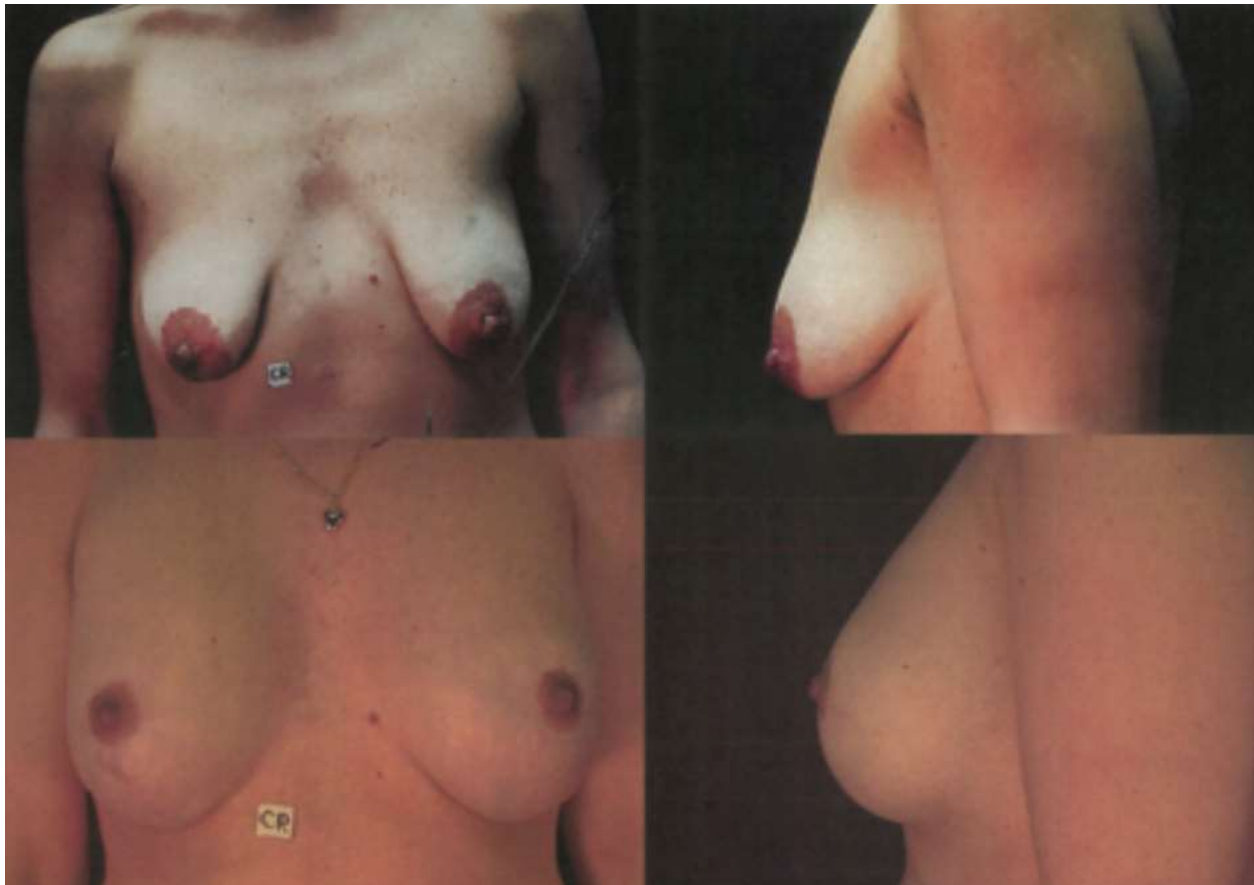


Figure 28: Combination of large areola and slight nosing down deformity.

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