

An Easier Guide to Z-Plasty

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THE Z-plasty is one of the most useful as well as one of the most widely used procedures in plastic surgery. In the treatment of contractures it is used for lengthening the scar and in the management of facial scars it is used to change the direction of the common limb.

In construction of the Z, the skin flaps must fit together in their transposed position and the limbs of the Z, must be equal in length. The angles of the Z, are also usually made equal in size. With the angle of 60 degrees, the percentage lengthening rises upto 75 percent. Except in some scar, sometimes dissimilar angles may have to be used.

For all beginners in plastic surgery and to avoid mistakes, the Z-plasty can be planned carefully with the aid of this Z-plasty guide board on the skin before any actual incision is made. The length of the central limb of the Z, determines the size of the Z-plasty, and is measured out on the line of the scar. From each end of the central limb, the side limbs of equal length is marked out in the opposite directions at an angle of 60 degrees. This gives three limbs of equal length and together they make the Z-plasty flaps. With

this Z-plasty guide board, one can decide the site, size, shape, angle and the stages the flaps are to be transposed with planning in reverse. The board is useful for large single Z-plasty or even for multiple Z-plasty, specially in cases of scar revision. To give maximum vascular capacity at the tip, the shape of the Z-plasty flap can be modified by slightly curved line to broaden the flap tip.

The Z-plasty guide board is rectangular in shape. It is made up of a metal plate $\frac{1}{2}$ mm. thick, 6x10 cms., in size. There are markers in the form of small holes in it. These markers are 1 cm. apart from each other and are arranged in five lines in a triangular fashion with the central marker in the centre. At four corners there are cuts, and diagonally opposite cuts indicates the central limb of the Z, on the line of the scar (Fig. 1). To determine the site and size of the Z, initially the central marker with diagonally opposite cuts are placed on the line of the scar, and the required length of the central limb of the Z, is marked with marking pen and ink through the markers. The rest of the Z, are so arranged that it makes an angle of 60 degrees with the central limb. The

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first half length of the side limbs are also marked by the help of the guide board

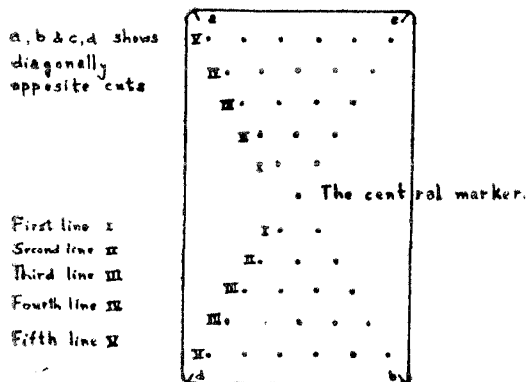


Fig. 1—Z-plasty guide board

from each end of the central limb in the opposite directions. The second half length of the side limbs are marked as follows, to make both half lengths of the side limbs equal to the central limb. For the first line one point is added (Fig. 2), for the

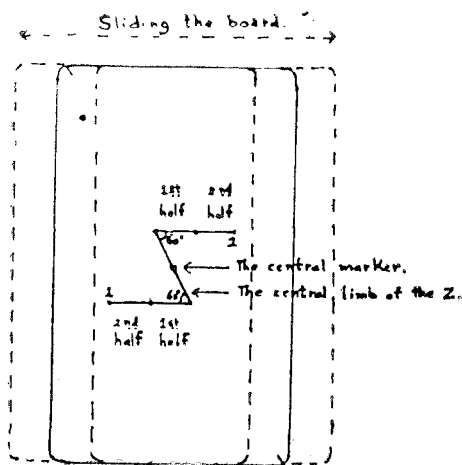


Fig. 2

second line two points are added (Fig. 3), for the third line three points are added (Fig. 4), for the fourth line four points are added (Fig. 5), and for the fifth line five

points are added (Fig. 6), by sliding the board outward in the line of the first half length of the side limbs and over the previous points according to the site and the size of the Z-plasty. This way all the three limbs are made equal in length, and a classic 60 degree angled Z-plasty is performed. In case of bridle, curved or overriding scar and with the difficulty to place the board one can mark out a cloth pattern and execute the Z-plasty.

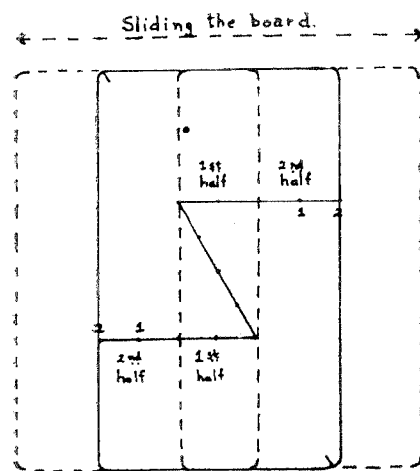


Fig. 3

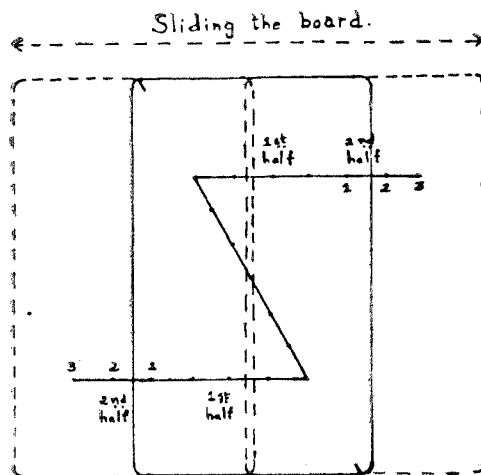


Fig. 4

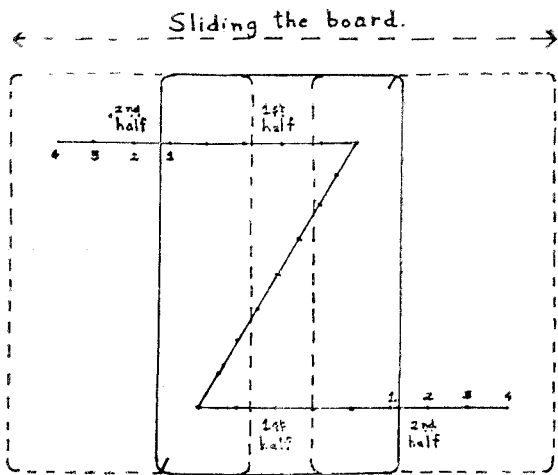


Fig. 5

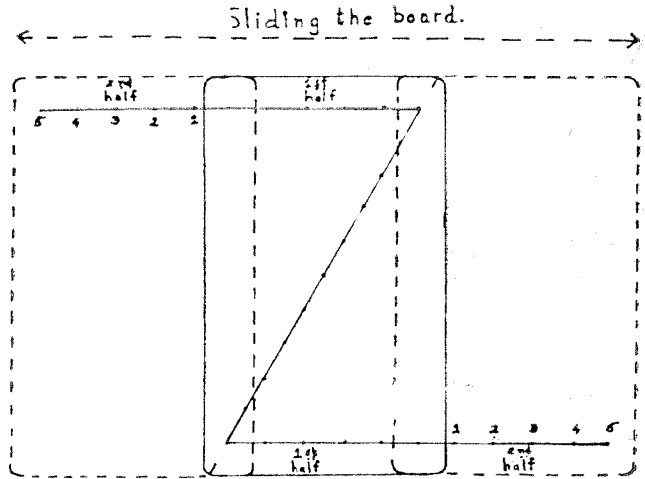


Fig. 6

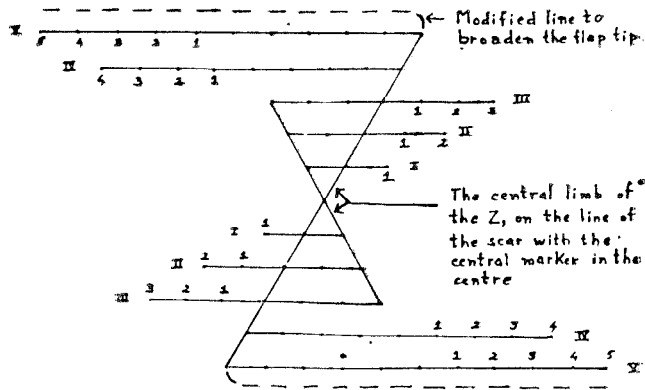


Fig. 7

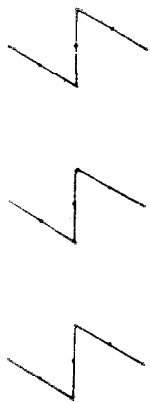


Fig. 8

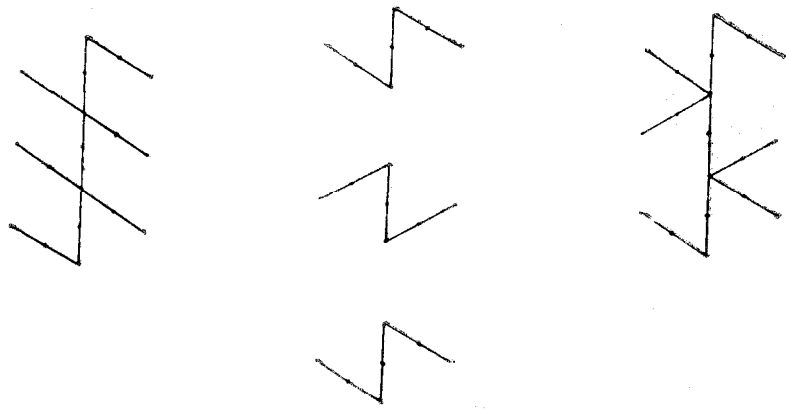


Fig. 9

This method is a little time consuming, but one can plan a precise Z-plasty with this board. It is based on sound principles of geometry. Cosmetically, gives best result, because of its perfectness. This instrument eliminates the use of foot-rule, divider and protractor, generally used for the Z-plasty. It is handy, easy to use, and can be sterilised by any method. In addition to this it acts as a

guide to perform accurate Z-plasty or any of its modifications (Fig. 7, 8 & 9).

Acknowledgement

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REFERENCES

1. Converse, J.M. : Reconstructive Plastic Surgery, Vol. one, (2nd ed.), pp. 54-64, 1977.
2. Grabb, W.C. & Smith, J.W. : Plastic Surgery (2nd ed.), pp. 86-96, 1973.
3. Mc Gregor, I.A. : Fundamental Techniques of Plastic Surgery, (5th ed.), pp. 36-55, 1972.