

Postoperative hospital stay was shorter than after conventional open surgery. In our series, the patients were followed for 14 months, with no observable problems or physiologic abnormalities. There were no operative scars in the neck except in the one patient who required conversion to conventional open surgery, and all operative scars were covered by the patients' clothing. When the axillary approach was used, the scar in the axilla was completely covered by the patient's arm in its natural position (Fig. 7.10). All patients were fully satisfied with the cosmetic results and with the minimal postoperative hypesthesia and paresthesia.

## COMPLICATIONS

One patient developed subcutaneous emphysema around the neck. Another patient developed subcutaneous emphysema of the neck and face. No postoperative bleeding or recurrent laryngeal nerve palsy was noted in any of the patients. There were far fewer complaints of postoperative pain and discomfort after these approaches than after conventional open surgery.

## CONCLUSIONS

The anterior chest approach minimizes the invasiveness of the operation, and the area of dissection is minimal since panoramic exposure is achieved by contrast gas insufflation. The scars on the anterior chest are completely hidden by clothing, even by clothes having a wide neck. Our procedure for creating a working space by the anterior chest and axillary approaches is significantly different from the regular procedure, which lifts both the platysma and the sternohyoid muscle. Since only the platysma is lifted during our axillary approach, CO<sub>2</sub> insufflation at a pressure of less than 4 mm Hg is sufficient. The axillary approach is more invasive than the anterior chest approach, but we believe that postoperative pain and discomfort will decrease with greater experience. The axillary approach is more advantageous cosmetically than the anterior chest approach because it completely eliminates the surgical scar. The sternohyoid muscle is divided transversely to obtain better exposure of the thyroid, but we do not divide the sternohyoid muscle to prevent adhesions to the platysma unless the nodule is large. Regional adhesions between the skin and the sternohyoid muscle cause an uncomfortable catching sensation in the neck on swallowing. The operation time has decreased to less than 120 minutes by the anterior chest approach and to less than 150 minutes by the axillary approach as the surgeons have accumulated experience with the procedure.

Large follicular tumors can be extracted through an axillary incision, providing cosmetic benefits. The anterior chest approach is indicated for bilateral multinodular goiter, microcarcinomas, and parathyroid adenomas. Both of these approaches provide minimal postoperative hypesthesia, paresthesia, and uncomfortable sensations on swallowing.

Endoscopic surgery of the neck is the procedure of choice in well-selected patients with thyroid disease.

## REFERENCES

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