To the Editor: Since the first carotid endarterectomy (CEA) in the world was done by De Bakey in 1953, the number of CEA has seen an extensive growing trend. Especially in the 1990s, North American Symptomatic Carotid Endarterectomy Trial and European Carotid Surgery Trial confirmed that CEA is the gold standard for the treatment of carotid stenosis. This procedure had become a new approach to prevent ischemic stroke.

A total of 1000 carotid endarterectomies were carried out from March 2009 to October 2016 in our department. Of these, 723 (72.3%) were males and 277 (27.7%) were females. The average age was 61.9 ± 7.4 years (range: 44.0–88.0 years). Seven hundred and seventy-eight patients (77.8%) were asymptomatic and 222 (22.2%) were asymptomatic. The clinical presentations included dizziness, amaurosis, numbness of limbs, dyskinesia, aphasia, and transient ischemic attack (TIAs). All patients with severe (70–99%) carotid stenosis were diagnosed by their clinical manifestations and confirmed results of carotid color Doppler flow imaging (CDFI), transcranial Doppler (TCD), carotid and brain computed tomography angiography (CTA). Carotid CDFI and CTA were the most common and essential tests in the clinical diagnosis and evaluation. They are also worthy economic and gold standard tests. We closely monitored patients with high-risk factors and gave them antiplatelet and/or lipid-lowering drug medications in preoperatively for 2 weeks.[3] All the operations were performed by the same surgical group. The same surgical technique was applied in all cases including general anesthesia, stable hemodynamic condition, administration of heparin (1 mg/kg) at 5–10 min before vascular clamping, and direct stitching at initial suture with 6/0 propylene. At the end of the operation, we would not neutralize heparin with protamine sulfate. Stump pressure, vascular clamping, and direct stitching at initial suture with 6/0 propylene. At the end of the operation, we would not neutralize heparin with protamine sulfate. Stump pressure, TCD, and electroencephalography were monitored during the intact procedure in all patients. All the operations were done fast, accurately, softly, and lightly.[2] We chose the orientation of the incision based on skin fold on the neck and with the purpose of minimizing scar formation. The choice of eversion CEA or standard CEA depended on the location of carotid bifurcation, the length of plaque, the size of vascular lumen, and specific clinical conditions. The use of shunt was according to the indications strictly,[3] which was mainly lied on the situation of cerebral anterior communicating artery and posterior communicating artery and the cerebral collateral circulation. Postoperative practices included subcutaneous drainage placement, incision oppressed for a while, blood pressure monitoring closely, and free radicals scavenging.[4] We used TCD to monitor the cerebral blood velocity every other day, supporting blood volume as necessary, application of antiplatelet and lipid-lowering drugs as needed.[5] Medical staff closely watched patients, to timely detect and correct the patient’s psychological problems and relieve their tension and stress. When patients were discharged, we gave them detailed instructions for using home medications and precaution issues and asked patients to be followed at designed visiting times. The operations were all successful. Median vascular clamping time was 15.7 min (11.0–29.0 min). All patients showed clinical improvement and neurological intact except 21 cases which had complications. The average hospitalized time was 1 week postoperatively. None of the patients developed new strokes or neurological deficit during follow-up. The 21 cases of postoperative complications are listed in Table 1.

All patients (except for the two death cases) were postoperatively followed for 1–36 months. Their quality of

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In our group, there were 4 cases (0.4%) with postoperative epilepsy. Two presented contralateral limbs twitching for few hours postoperatively without loss of consciousness. No more twitching appeared when antiepileptic medication was given. Head computed tomography showed small multiple cortex infarctions in the operation side. We considered that this epilepsy was caused by cerebral embolization. The other 2 cases were intracranial hemorrhage.

In this study, 4 cases (0.4%) of post-CEA had severe carotid stenosis (>70%). Repeat CTA showed anatomic stenosis in the distal section of the operation. It was believed when blood flow was restored after eversion endarterectomy, the intimal varus or lining floating resulted in luminal narrowing. No further surgical procedure was done, but they were closely followed because the patients had no symptoms and performed well.

In conclusion, the characteristics of successful CEsAs should be: (1) the team cooperation which included skillful, experienced, and knowledge surgical team, and qualitative and well-trained nursing team; (2) relatively fixed or staff: with good surgical assistant, anesthesiologists, and/or nurses; (3) multidisciplinary consultations: peroperative management for patients with high-risk factors and complications; (4) program managing process for strictly grasping the surgical indication and for inspection/examination/testing patients pre-, intra-, and post-operatively; and (5) the choice of incision and operative approach should be based on the specific circumstances of patients with good personal planning.

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**Conflicts of interest**
There are no conflicts of interest.

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