Abstract: We report the case of a 97 year old woman suffering from a voluminous diverticle of the cervical esophagus with important comorbidities and a very poor quality of life. A diverticulectomy under general anesthesia implied a high level of risk. Regional anesthesia was chosen, i.e. an intermediate cervical plexus block, with mild sedation allowing to maintain contact with the patient. The procedure was carried out without complications and the patient’s and surgical staff satisfaction were optimal.

Keys words: Intermediate cervical plexus; Zenker’s diverticulum.

INTRODUCTION

Zenker’s diverticulum is a pulsion diverticulum of the pharyngoesophageal mucosa. It is a rare lesion that mostly affects elderly patients. It leads to dysphagia, aspiration and pneumonia. It is managed through endoscopic or surgical repair. The endoscopic technique may be hampered by reduced cervical extension. Most surgical repairs are carried out under general anesthesia (GA). Even though regional anesthesia (RA) is largely used in cervical surgery such as carotid or thyroid surgery, very few publications report the use of RA in cervical esophagus surgery (1, 2). For Zenker’s diverticulum surgery, RA is interesting because a cooperative patient able to swallow helps the surgeon identify the upper oesophageal sphincter to perform an extra mucosal myotomy. In the case of a voluminous diverticule, an awake and cooperative patient allows the surgeon to gradually empty the diverticulum from its contents, through spitting, thus reducing the risk of inhalation.

BACKGROUND

We report the case of a 97 year old woman, 50 kg and 145 cm, suffering from a voluminous (> 7 cm) left diverticulum of the cervical esophagus. Over the years this pathology had totally hindered mouth feeding, and required total parenteral nutrition as no nasogastric tube could be positioned. Due to her poor quality of life the patient had developed a severe reactive depression with suicidal ideation and anxiety attacks leading to benzodiazepine overuse. Her past medical history included: severe ischemic heart disease with double coated stents on the circumflex and anterior inter-ventricular arteries 5 years earlier, muscular-skeletal disorder, severe aortic valve stenosis, hypertension with mild retinopathy and mild renal failure, occlusion of the right internal carotid, a non-significant stenosis of the left one and very poor functional capacity. The neurological examination was normal. Her medication included: sertraline, alprazolam, sandostatine, bisoprolol, aspirin, clopidogrel and lansoprazole. The endoscopic treatment was rejected because it would require extreme cervical extension and we had considered it too hazardous for the patient given her severe vertebral cervical arthrosis and carotid stenosis.

Percutaneous endoscopic gastrostomy attempts had failed due to complete stenosis of the proximal esophageal lumen. The proposed intervention was a diverticulectomy through left cervicotomy under GA. After careful evaluation of the benefit-risk balance, the anesthesiologist team accepted the case for a GA, granting the patient an ASA 4 physical status score.
CASE DESCRIPTION AND TECHNIQUES

Anesthetic management

A few days before the scheduled operation, the patient was admitted in the intensive care unit due to an acute myocardial infarction (AMI), managed with medical treatment, and the operation was postponed. One month after the AMI, the anesthesiologist team reconsidered the case and decided to practice a RA combined with conscious sedation in order to reduce the risk of perioperative complications. Her preoperative medication included: sertraline, alprazolam, sandostatine, bisoprolol, aspirin, clopidogrel, isosorbide dinitrate, lansoprazole. It was decided to suspend clopidogrel one week before surgery. Our chosen RA technique was the intermediate cervical plexus block (ICPB). Its feasibility, efficacy and safety had been reported in some studies on carotid surgery (3-7). All deep cervical plexus block techniques were excluded because they are more difficult to perform and potentially more dangerous than blocks with a superficial approach (8). The specific risks of a deep block are the injection of the local anesthetic into the vertebral artery leading to immediate seizures, an epidural injection or spinal injection with total spinal anesthesia as a consequence.

The ICPB consists of injecting the local anesthetic deep into the investing cervical fascia while remaining above the pre-vertebral fascia (9, 10). We performed ICPB without ultrasound (US) imaging, using superficial landmarks and achieving one injection (3). We inserted a 15 mm-25G needle to its full length, perpendicular to the skin, along the posterior border of the sternocleidomastoid muscle, midway between the mastoid process and the clavicle. After an aspiration test, we injected 12 ml of 0.75%. ropivacaine The block was excluded because they are more dangerous than blocks with a superficial approach (8). The specific risks of a deep block are the injection of the local anesthetic into the vertebral artery leading to immediate seizures, an epidural injection or spinal injection with total spinal anesthesia as a consequence.

Sedation was performed through intravenous midazolam titration, up to a total perioperative dose of 5 mg (2 mg preoperatively, just before achieving the block, and 3 mg peroperatively) associated with a pleasant conversation.

In fact, the sedation target was a stress-free, conscious and cooperative patient. The operation lasted 1 hour; the time between the block and the end of surgery was 90 minutes.

Only 3 ml of 0.5% lidocaine were locally used by the surgeon just before the section of the diverticulum due to minor patient discomfort. Finally, the patient’s and the staff’s satisfaction were optimal.

Surgical technique

The patient lay comfortably in supine position, her head turned right, without any neck extension. An incision was made along the medial border of the left sternocleidomastoid muscle, cutting through the omohyoid muscle and the middle thyroid artery. The stenotic carotid artery and internal jugular vein were carefully reclined. During the dissection of the diverticulum from the posterior vertebral plane, regurgitations occurred due to saliva pooling. This was managed by the anesthesiologists who prevented any pulmonary inhalation. The regurgitated material was aspirated out of the mouth or a simple paper tissue was used to collect the sputum. Complete mobilization of the large diverticulum was achieved without pain, as well as the cricopharyngeal myotomy over a length of 4 cm. 3 ml of 0.5% lidocaine were used just before positioning the linear stapler for resection of the diverticulum while taking extreme care not to modify the esophagus diameter. The patient only felt a slight pinch at this peculiar time.

Post-operative period

The patient ingested water 8 hours after the operation and started solid diet gradually from day 1 onwards. She was discharged to a rehabilitation center on day 2, with some significant improvement in both her physical and mental states.

DISCUSSION

Publications about RA in cervical esophagus surgery are very rare. We have found one series of 48 patients with cervical diverticulum treated with extra mucosal myotomy using an unspecified infiltration of lidocaine for local anesthesia (1).

Anyway we cannot compare this local anesthesia technique to our ICPB because the authors did not describe their technique in details, such as anatomical landmarks, sites of injection, the timing and total dose of local anesthetics injected.

We found one case report of diverticulectomy under cervical block in a patient suffering from ankylosing spondylitis (2). Instead, cervical plexus blocks are widely used in carotid and thyroid surgery. The RA techniques most frequently used are the deep, superficial or combined cervical plexus block, as described by Winnie, Moore, Murphy and Scott (11-14). When comparing the superficial and the deep cervical blocks, Stoneham reported that both blocks were of similar effectiveness in carotid surgery (15). Based on the most recent anatomical
Our experience suggests that the ICPB could be considered as a good alternative to general anesthesia in open cervical esophagus surgery for selected high risk patients.

References

4. Choquet O., Dadure C., Capdevila X., Ultrasound-guided deep or intermediate cervical plexus block: the target should be the posterior cervical space, Anesthesia and Analgesia, 111, 1563-4, 2010.

© Acta Anaesthesiologica Belgica, 2015, 66, n° 2