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Protocol implementation of selective postoperative lumbar spinal drainage after thoracic aortic endograft


Background: Spinal cord ischemia (SCI) remains a significant concern in patients undergoing endovascular repair involving the thoracic aorta (thoracic endovascular aortic repair [TEVAR]). Perioperative lumbar spinal drainage has been widely practiced for open repair, but there is no consensus treatment protocol using lumbar drainage for SCI associated with TEVAR. This study analyzes the efficacy of an institutional protocol using selective lumbar drainage reserved for patients experiencing SCI following TEVAR.

Methods: A prospectively maintained registry was reviewed to identify all patients who underwent TEVAR from January 2000 through June 2010. Preoperative characteristics, intraoperative details, and outcomes, including neurologic deficit and mortality at 30 days and 1 year were determined based on reporting standards. Patients developing symptoms of SCI in the postoperative setting were compared with those without neurologic symptoms. SCI patients who received selective lumbar drainage were grouped based on resolution of neurologic function, with risk factors and outcomes of these subgroups analyzed with χ², t test, logistic regression, and analysis of variance (ANOVA).

Results: Two hundred seventy-eight TEVARs were performed on 251 patients. Twelve patients accounting for 12 TEVARs were excluded from analysis: 5 patients experienced SCI preoperatively, 4 patients were drained preoperatively, 2 expired intraoperatively, and 1 procedure was aborted. Of the remaining 266 procedures in 239 patients, 16 (6.0%) developed SCI within the 30-day postoperative period. Risk factors for SCI reaching statistical significance included length of aortic coverage (P = .036), existence of infraaortic pathology (P = .026), and history of stroke (P = .043). Stent graft coverage of the left subclavian artery origin was required in 28.9% (n = 77) and was not associated with SCI (P = .52).

Ten of 16 post-TEVAR SCI patients received selective postoperative lumbar drainage and were categorized based on resolution of symptoms into complete resolution (n = 3; 30%), partial resolution (n = 4; 40%), and no resolution (n = 3; 30%). No patient characteristics or risk factors reached significance in comparison of lumbar drained patients and nondrained patients. All seven drained patients without complete resolution of SCI died within the first year after surgery, while all three of the complete responders survived (P = .017). In patients with SCI, increased all-cause mortality was observed at 1 year (56.3% vs 20.4%; P = .003).

Conclusions: A protocol utilizing selective postoperative lumbar spinal drainage can be used safely for patients developing SCI after TEVAR with acceptably low permanent neurologic deficit, although overall survival of patients experiencing SCI after TEVAR is diminished relative to non-SCI patients.

Robotic-assisted aortic surgery with and without minilaparotomy for complicated occlusive disease and aneurysm

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Objective: Published reports of robotic-assisted aortic surgery involve a combination of laparoscopy for aortic dissection and a robotic system for vascular reconstruction. The objective of this study is to determine the feasibility and advantage of a total robotic-assisted dissection and vascular reconstruction vs robotic-assisted aortic procedures for aortoiliac occlusive disease (AIOD) and abdominal aortic aneurysm (AAA).

Methods: From February 2006 to August 2010, 21 patients were selected for robotic-assisted aortic procedures: aortobifemoral bypass in 12, AAA repair in 6, iliac aneurysm repair in 1, and ligation of type II endoleak after endovascular aneurysm repair in 2. Inclusion criteria included AAA >5 cm, iliac aneurysm >3 cm, and AIOD. TransAtlantic InterSociety Classification (TASC) C or D lesions. The da Vinci S Surgical System (Intuitive Surgical Inc, Sunnyvale, Calif) was used for the abdominal aortic dissection in all cases and for the aortic anastomosis in three cases.

Results: The 21 patients (6 women, 15 men) were an average age of 65.7 years (range, 44–86 years), had a body mass index (BMI) of 27.23 kg/m², and 90.4% were American Society of Anesthesiologists (ASA) class 3 or 4. Robotic dissection of the abdominal aorta was successful in 20 patients (95.2%). One patient required full conversion to open AAA repair due to trocar injury. Of the remaining 20 patients, the average robotic dissection time of the infrarenal aorta was 113.1 minutes, and the average aortic clamp time was 86 minutes. The procedure in 15 patients was performed with a minilaparotomy using an average abdominal incision of 13 cm to implant the Dacron or polytetrafluoroethylene graft. Five patients underwent a total robotic-assisted procedure with robotic aortic reconstruction or ligation of a type II endoleak. The 30-day survival rate was 100%. Median length of stay was 7.5 days. All grafts were patent at a median follow-up of 32.0 months.

Conclusions: For aortic procedures completed totally robotically without an abdominal incision, the estimated blood loss was significantly less than in robotic-assisted procedures with a minilaparotomy. In these selected patients, robotic-assisted technology may be part of the armamentarium for the vascular surgeon as another less invasive method for the treatment of complicated occlusive disease or aneurysm.

Long-term follow-up of type II endoleak embolization reveals the need for close surveillance

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A new classification scheme for treating blunt aortic injury

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Background: There are numerous questions about the treatment of blunt aortic injury (BAI), including the management of small intimal tears, what injury characteristics are predictive of death from rupture, and which patients actually need intervention. We used our experience in treating BAI during the past decade to create a classification scheme based on radiographic and clinical data and to provide clear treatment guidelines.

Methods: The records of patients admitted with BAI from 1999 to 2008 were retrospectively reviewed. Patients with a radiographically or operatively confirmed diagnosis (echocardiogram, computed tomography, or angiography) of BAI were included. We created a classification system based on the presence or absence of an aortic external contour abnormality, defined as an alteration in the symmetric, round shape of the aorta: (1) intimal tear (IT)—absence of external aortic contour abnormality and intimal defect and/or thrombus of <10 mm in length or width; (2) large intimal flap (LIF)—absence of external aortic contour abnormality and intimal defect and/or thrombus of ≥10 mm in length or width; (3) pseudoaneurysm—presence of external aortic contour abnormality and contained rupture; (4) rupture—presence of external aortic contour abnormality and free contrast extravasation or hemothorax at thoracotomy.

Results: We identified 140 patients with BAI. Most injuries were pseudoaneurysms (71%) at the isthmus (70%), 16.4% had an IT, 5.7% had a LIF, and 6.4% had a rupture. Survival rates by classification were IT, 87%; LIF, 100%; pseudoaneurysm, 76%; and rupture, 11% (one patient). Of the ITs, LIFs, and pseudoaneurysms treated nonoperatively, none worsened, and 65% completely healed. No patient with an IT or LIF died. Most patients with ruptures lost vital signs before presentation or in the emergency department and did not survive. Hypotension before or at hospital presentation and size of the periarteric hematoma at the level of the aortic arch predicted likelihood of death from BAI.

Conclusions: As a result of this new classification scheme, no patient without an external aortic contour abnormality died of their BAI. ITs can be managed nonoperatively. BAI patients with rupture will die, and resources could be prioritized elsewhere. Those with LIFs do well, and currently, most at our institution are treated with a stent graft. If a pseudoaneurysm is going to rupture, it does so early. Hematoma at the arch on computed tomography scan and hypotension before or at arrival help to predict which pseudoaneurysms need urgent repair.
Methods: Ten patients underwent common femoral endovenectomy with endoluminal iliocaval recanalization. The Venous Clinical Severity Score (VCSS), a validated tool to assess chronic venous disease, the Villalta scale, a validated tool to quantify postthrombotic syndrome, the clinical classification of CEAP, and the Venous Insufficiency Epidemiological and Economic Study-Quality of Life (VEINES-QOL)/Sym questionnaires were completed preoperatively and readministered postoperatively at 8.8 months (mean).

Results: Five patients were followed for more than 6 months and form the basis of the long-term analysis. All demonstrated significant improvement in their venous scores postoperatively. The VCSS preoperatively was 17 and fell to 9.8 postoperatively (P = .02). The Villalta scale dropped from 13.6 preoperatively to 6.0 postoperatively (P = .002). The VEINES-QOL/Sym questionnaire, a sensitive marker of patient quality of life and symptom status, was improved (P = .01 and .02, respectively).

Conclusion: Chronic postthrombotic iliofemoral venous obstruction treated with common femoral endovenectomy and endoluminal recanalization improves objective outcome measures of patients with chronic postthrombotic obstruction. By restoring unobstructed venous drainage through the CFV to the vena cava, patients’ postthrombotic morbidity is reduced and quality of life is improved.

Evaluation of quality of life over time among 453 patients with hyperhidrosis submitted to endoscopic thoracic sympathectomy

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Objectives: Current data do not provide enough information on how quality of life (QoL) evolves over time in cases of endoscopic thoracic sympathectomy (ETS). The purpose of this study was to ascertain whether the immediate improvement in QoL after the surgery was sustained until the fifth postoperative year.

Methods: This was a prospective, nonrandomized and uncontrolled study. From March 2001 to December 2003, 475 consecutive patients with hyperhidrosis submitted to ETS were included. A QoL questionnaire was applied at the preoperative day, around the 30th postoperative day, and after the fifth year.

Results: After excluding 22 patients who did not answer all the questions, we analyzed 453 patients. Their ages ranged from 11 to 57 years old, with a mean of 25.3 ± 7.9 years, including 297 female patients (65.6%). All patients were assessed on three occasions: before surgery, around the 30th postoperative day, and after the fifth postoperative year. The QoL before surgery was considered to be poor or very poor for all patients. The QoL around 30 days after surgery was better in 412 patients (90.9%), the same in 27 patients (6.0%), and worse in 14 patients (3.1%). After 5 years, 409 patients (90.3%) were better, 27 (6.0%) were the same, and 14 (3.1%) were worse. There were no differences between these postoperative times according to the McNemar statistical test.

Conclusion: The patients had an immediate improvement in QoL after ETS, and this improvement was sustained until the fifth postoperative year.

Management and prognosis of nonpulmonary large arterial disease in 25 patients with Behçet disease from a single center

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Objective: The purpose of this study was to evaluate and report our treatment policies in the management of nonpulmonary arterial aneurysms in Behçet disease and to assess the prognosis in a cohort of 25 patients diagnosed between 1996 and 2007 by formally reassessing their outcome at the present time.

Methods: We identified 25 patients (24 men/1 woman) with Behçet disease with nonpulmonary aneurysms (n = 23) or occlusions (n = 2) between 1986 and 2007. All patients fulfilled the International Study Group Criteria for Behçet disease. Aneurysms were demonstrated with contrast-enhanced computed tomography (CT) or magnetic resonance angiography (MRA) after first-line ultrasonography. Standard surgical procedures were carried out in 22 patients. One patient with a nonruptured saccular aortic aneurysm and 2 patients with carotid aneurysms were managed only medically. For the patients with aneurysms located in the aortic bifurcation, we preferred aorto-bi-iliac bypasses; for the other extremity aneurysms, we were able to ligate the arteries; and for the other 10 extremity aneurysms we used polytetrafluoroethylene (PTFE) grafts for bypass procedures. All patients received immunosuppression with cyclophosphamide and corticosteroids before and after the surgical intervention in order to avoid Behçet disease activation. We identified 25 patients (24 men/1 woman) with Behçet disease with nonpulmonary aneurysms (n = 23) or occlusions (n = 2) between 1986 and 2007. All patients fulfilled the International Study Group Criteria for Behçet disease. Aneurysms were demonstrated with contrast-enhanced computed tomography (CT) or magnetic resonance angiography (MRA) after first-line ultrasonography. Standard surgical procedures were carried out in 22 patients. One patient with a nonruptured saccular aortic aneurysm and 2 patients with carotid aneurysms were managed only medically. For the patients with aneurysms located in the aortic bifurcation, we preferred aorto-bi-iliac bypasses; for the other extremity aneurysms, we were able to ligate the arteries; and for the other 10 extremity aneurysms we used polytetrafluoroethylene (PTFE) grafts for bypass procedures. All patients received immunosuppression with cyclophosphamide and corticosteroids before and after the surgical intervention in order to avoid Behçet disease activation.

Results: There was one death and 1 patient was lost to follow-up. The remaining 23 patients (92%) were under follow-up after a mean of 7.4 ± 2.9 years after their operation. Four PTFE grafts (40%) inserted for extremity aneurysms (n = 23) or occlusions (n = 2) were under follow-up after a mean of 7.4 ± 2.9 years after their operation. Four PTFE grafts (40%) inserted for extremity aneurysms (n = 23) or occlusions (n = 2) were under follow-up after a mean of 7.4 ± 2.9 years after their operation.

Conclusion: The surgical management of large, nonpulmonary arterial disease of Behçet disease is currently quite satisfactory. When the false aneurysm is in the infrarenal aorta, aorto-bi-iliac bypass is the preferred surgical intervention. Extremity aneurysms can be treated with synthetic graft insertion. In selected cases, ligation can give satisfactory results; however, postoperative claudication is common. In some patients with small intact saccular aneurysms, surgery may not be necessary. Patients must be prescribed immunosuppressive therapy with cyclophosphamide and corticosteroids before and after the surgical intervention in order to avoid Behçet disease activation.