Outcome after unilateral hypogastric artery occlusion during endovascular aneurysm repair

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Purpose: The purpose of this study was to determine the long-term functional outcome after unilateral hypogastric artery occlusion during endovascular stent graft repair of aortoiliac aneurysms.

Methods: During a 41-month period, 157 consecutive patients underwent elective endovascular stent graft repair of aortoiliac aneurysms with the Medtronic AneuRx device. Postoperative computed tomography scans were compared with preoperative scans to identify new hypogastric artery occlusions. Twenty-three (15%) patients had unilateral hypogastric occlusion, and there were no cases of bilateral occlusions. Telephone interviews about past and current levels of activity and symptoms were conducted, and pertinent medical records were reviewed. All 23 (100%) patients were available for the telephone interview. A disability score (DS) was quantitatively graded on a discrete scale ranging from 0 to 10 corresponding to “virtually bed-bound” to “greater-than-a-mile” exercise tolerance. Worsening or improvement of symptoms was expressed as a difference in DS between two time points (−, worsening/+ , improving).

Results: Among the 23 patients, two groups were identified: 10 patients (43%) had planned and 13 patients (57%) had unplanned or inadvertent occlusions. The patients in the two groups did not differ significantly in the mean age (73.4 vs 73.7 years), sex (male:female, 9:1 vs 10:3), and duration of follow-up (15.6 vs 14.4 months). Nine (39%) of the 23 patients, five patients in the planned and four patients in the unplanned group, reported significant symptoms of hip and buttock claudication ipsilateral to their occluded hypogastric arteries. The mean decrement from baseline of these nine patients in their DS postoperatively was −3.3. The symptoms were universally noted on postoperative day 1. Although most patients improved (89%), one (11%) never got better. Among those whose symptoms improved, the mean time to improvement was 15 weeks, but with a plateau thereafter resulting in a net decrement of DS of −2.3 from baseline. Finally, when questioned whether they would undergo the procedure again, all 23 patients unanimously answered, “Yes.”

Conclusions: A significant number (39%) of patients who sustain hypogastric artery occlusion after endovascular aneurysm repair have symptoms. Although most patients with symptoms have some improvement, none return to their baseline level of activity. Despite this, all patients in retrospect would again choose endovascular repair over conventional open repair. (J Vasc Surg 2001;33:921–6.)

Endovascular stent graft repair of aortic aneurysms offers a less invasive alternative to open surgical aneurysm repair. However, endovascular treatment may result in planned or inadvertent occlusion of the internal iliac (hypogastric) artery.

Endovascular repair of common iliac aneurysms sometimes requires exclusion of the hypogastric artery depending on the presence of an adequate distal landing zone, and treatment of hypogastric aneurysms always requires coverage of its orifice. Furthermore, during routine endovascular stent graft repair of abdominal aortic aneurysm (AAA), misdeployment of the device or measurement errors in device length can lead to inadvertent occlusion of the hypogastric artery.

Although the morbidity of bilateral hypogastric artery occlusions is well recognized, uncertainty exists as to the clinical significance and natural history of unilateral hypogastric artery occlusion. The purpose of this study was to examine the long-term outcome of patients who have sustained unilateral hypogastric occlusions during endovascular stent graft repair of their aortoiliac aneurysms.

METHODS

Between October 1996 and April 2000, 157 patients underwent endovascular repair of their aortic and aortoiliac aneurysms with the AneuRx stent graft (Medtronic AVE, Santa Rosa, Calif). The AneuRx stent graft is a modular, self-expanding, bifurcated endovascular device comprised of a polyester graft joined to a nitinol exoskeleton. The iliac limbs are secured to the common iliac arteries with a minimum length of 2 cm required for secure distal seal. In patients with common iliac aneurysms extending to the iliac bifurcation or in patients with hypogastric aneurysms that required treatment, elective preoperative coil embolization of the hypogastric artery was performed with extension and fixation of the stent graft to the external iliac artery (Figure). Primary branch embolizations...
were performed in cases of hypogastric artery aneurysms. No specific attempt was made to selectively embolize the main hypogastric trunk versus primary branches when the hypogastric artery was normal. Patency of the contralateral hypogastric artery was assessed before elective hypogastric artery occlusion, and all patients were informed of the potential for hip and buttock claudication. Some patients sustained inadvertent occlusion of a hypogastric artery as a result of imprecise stent graft deployment, stent graft migration, or inaccurate preoperative length measurement resulting in the selection of a device that was too long.

Six (4%) of the 157 patients had isolated common iliac or hypogastric artery aneurysms and were treated with one or more iliac stent graft modules. The remaining patients had AAAs with or without concomitant iliac aneurysms (34 of 151 [23%]) and were treated with a bifurcated stent graft system. Preoperative evaluation and device sizing were performed with timed-bolus, contrast-enhanced spiral computed tomography (CT) angiography with three-dimensional (3-D) reconstruction or conventional angiography with graduated marker catheters. Postoperative imaging studies included contrast CT angiography and duplex ultrasound scan obtained before predischarge (usually postoperative day 1 or 2). Patients were followed up with clinical evaluation and CT and duplex scan imaging at 1 month, 6 months, 12 months, and annually thereafter.

Of the 157 patients, 23 (15%) experienced unilateral hypogastric occlusion of previously patent hypogastric artery after endovascular aneurysm repair. New hypogastric occlusion was documented by comparison between the patients’ preoperative and postoperative imaging studies. No patient had preexisting contralateral hypogastric occlusion such that there were no cases of bilateral hypogastric occlusion. The 23 patients’ medical records and follow-up CT scans were reviewed in detail, and a careful telephone interview was conducted with a standardized questionnaire. All 23 patients (100%) were alive and available for the telephone interview to determine symptoms of hip and buttock claudication. Data were gathered during a single session with each patient at the time of the patient’s last follow-up.

Disability was graded with a semiquantitative scale with a DS ranging from 0 to 10, with 0 corresponding to “virtually bed-bound” and 10 corresponding to “walking greater-than-a mile” exercise tolerance (Table I). The questionnaire included questions on the level of physical activity before and immediately after the endovascular repair, the time the symptoms of buttock or thigh pain or claudication were first noticed, the time to improvement (if any), and the current level of physical activity and symptoms. Patients were asked whether they would choose to undergo the endovascular procedure again knowing that perhaps open surgical repair might have avoided occlusion of the hypogastric artery. Worsening or improvement of symptoms was expressed as a difference in DS between two time points (DS[T2] – DS[T1]: A negative figure indicated a worsening symptom; a positive figure indicated an improving symptom). Statistical analysis was performed with the 2-tailed Student t test. Significance was assumed if \( P \) was less than .05.

**RESULTS**

Twenty-three (15%) of 157 patients had unilateral hypogastric artery occlusion associated with endovascular
aneurysm repair. The mean follow-up was 14.9 months (range, 0.2-39.4). The mean age was 73.6 ± 7.5 years, and there were 19 men (83%) and four women. These results were no different from the group of 134 patients who did not sustain occlusion of their hypogastric arteries. Twenty (87%) patients were treated with the bifurcated modular system, and three patients were treated for isolated iliac aneurysms with iliac devices only.

Two patient groups were identified among the 23 patients studied. The first group included 10 patients (43%) who had therapeutic or planned hypogastric artery occlusion, and the second group included 13 patients (57%) who had inadvertent or unplanned hypogastric occlusion (Table II). The patients in the two groups did not differ significantly in their mean age (73.4 ± 8.6 vs 73.7 ± 7.0 years), sex (male:female, 9:1 vs 10:3), or duration of follow-up (15.6 vs 14.4 months).

Bifurcated endovascular devices were used in eight (80%) of the 10 patients in the first group and 12 (92%) of the 13 patients in the second group (P = not significant [NS]). Five (50%) of the 10 planned and five (38%) of the 13 unplanned occlusions occurred in the first half of our stent graft experience (P = NS). Proximal aortic extender cuffs were used in more patients in the unplanned group than in the planned group (50% vs 10%, P < .05), because many of the inadvertent occlusions were due to misdeployment of the primary bifurcation module too far below the renal arteries, which required placement of proximal extender cuffs to achieve adequate proximal fixation. Low deployment and errors in measurement of aortoiliac lengths led to 11 (85%) of the 13 cases of unplanned hypogastric occlusions, which occurred ipsilateral to the main bifurcated modular device. Iliac tortuosity and proximal neck angulation contributed to errors in measurement and difficulty in device deployment. With increased experience and improvements in technique, some of these problems were overcome during the latter half of our series.

There was no difference between the two groups in the mean overall baseline DS (planned vs unplanned, 7.8 vs 7.7), early postoperative DS (5.7 vs 7.0), and the net decrement in DS (–1.6 vs –0.5). Nine of the 23 patients had new symptoms of hip and buttock claudication ipsilateral to their hypogastric artery occlusions after endovascular repair. No patient had symptoms contralateral to the side of the occlusion. There was no difference in baseline DS between the nine patients with symptoms and the 14 symptom-free patients (7.4 vs 8.2). Five of the nine patients with symptoms were in the planned group (5 of 10 [50%]), and four were in the unplanned group (4 of 13 [31%]) (P = NS). The mean decrement from baseline DS in these nine patients was –3.3. In all patients with new onset hip and buttock claudication, symptoms were noted on the first postoperative day. Claudication symptoms improved in eight (89%) of the nine patients in 4 to 24 weeks with a mean time to improvement of 15 weeks. The symptoms, however, never resolved completely in any patient, and patients continued to have a mean decrement of DS of –2.3 at 4.1 to 33.2

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AAA, Abdominal aortic aneurysm; DS, disability score; F, female; F/U, follow-up; L, left; M, male; N, no; Postop, postoperative; R, right; Y, yes.
months (mean, 15.9). Symptoms remained unchanged in one patient at 4.6 months’ follow-up. In response to the question of whether they would choose to undergo endovascular aneurysm repair again knowing that open surgical repair may have prevented their claudication, all 23 (100%) patients answered, “Yes.”

**DISCUSSION**

The internal iliac or hypogastric arteries are the major blood supply to the pelvic organs and buttock musculature. In addition, the hypogastric arteries provide important collateral circulation to the colon, especially in the presence of inferior mesenteric arterial insufficiency. Extensive cross-pelvic communication between the two hypogastric arteries permits the ligation of one hypogastric artery in some circumstances. On the other hand, ligation of both hypogastric arteries can lead to severe pelvic ischemia with hip and buttock claudication, bladder and bowel dysfunction, colon ischemia, and decubitus ulcer formation. More subtle and rare manifestations include spinal cord ischemia and neuralgic syndromes in the iliofemoral and sciatic distributions from pelvic nerve ischemia that are difficult to manage. Furthermore, in males it can lead to iatrogenic vasculogenic impotence with a significant impact on the patient’s quality of life.

During open aortoiliac aneurysm repair every effort is made to preserve one or both hypogastric arteries during aortoiliac reconstruction. Endovascular therapy of aortoiliac aneurysmal disease does not allow direct revascularization or reconstruction of the hypogastric artery by means of purely endovascular methods with currently available devices. The clinical consequences of unilateral and bilateral hypogastric artery occlusions are debated, with some advocating routine unilateral or bilateral occlusions as necessary to achieve complete aneurysm exclusion during endovascular AAA repair. In this study, we examined the outcome of patients who had new, unilateral occlusions of their hypogastric arteries with patent contralateral hypogastric arteries.

We found that, at a mean follow-up of nearly 15 months, 39% of patients had chronic symptoms of buttock ischemia, which became evident in the immediate postoperative period and which required, on average, almost 4 months to achieve symptomatic improvement. The risk of buttock claudication after hypogastric occlusion ranges between 10% and 30%. Some recent studies that have addressed this question specifically in the context of endovascular stent graft repairs of aortoiliac aneurysms were published together in a recent issue of the *Journal of Vascular and Interventional Radiology*. In the first of the three articles, Razavi et al from Stanford analyzed 32 patients (different study cohort from current study) with either unilateral or bilateral occlusions of their hypogastric arteries during endovascular treatment of aortoiliac aneurysms. They reported a similar rate of 38% of chronic, symptomatic pelvic ischemia at a mean follow-up of 35 months. Lee et al from Boston studied a similar cohort of 27 patients with hypogastric artery occlusions. In their study, 26% of the patients had claudication symptoms at a mean follow-up of 7.3 months. Cynamon et al from New York reported 32 patients who underwent hypogastric embolization before endovascular repair of aortoiliac pathologic conditions, and their rate of postoperative symptoms referable to the pelvic circulation was 41% at a mean follow-up of 18 months. The minor differences in the rates of claudication likely reflect the relatively small sample sizes, the mixture of unilateral and bilateral occlusions, and the retrospective nature of each of these studies (including our own), which rely on remote, subjective memories of one’s preoperative functional state and postoperative disability.

Reports from the surgical literature suggest that the incidence of hip and buttock claudication after unilateral hypogastric ligation is lower than with endovascular occlusion. Possible explanations include improved collateral revascularization of the contralateral hypogastric artery (increasing cross-pelvic flow) and reimplantation of the inferior mesenteric artery (increasing mesenteric-pelvic collateral flow) during the operative procedure. In addition, the magnitude of operative surgical trauma is greater in conventional open surgery. Incisional pain from a laparotomy may mask milder degrees of buttock rest pain, and diminished mobility may prevent early recognition of claudication. A controlled investigation comparing open versus endovascular hypogastric occlusion has not yet been carried out.

No patient in this series experienced mesenteric (colonic) ischemia. This is consistent with other studies reporting unilateral hypogastric artery occlusion. Colon ischemia has been reported as a complication of bilateral hypogastric occlusion.

In summary, a significant number (39%) of patients who sustain hypogastric artery occlusions after endovascular aortoiliac aneurysm repair have symptoms. Although most of these patients demonstrate some improvement of their symptoms, none return to their baseline levels of physical activity. Despite this, however, patient satisfaction remains high, and all patients in retrospect would again choose endovascular repair over conventional open repair.

A prospective study with a standardized instrument of functional assessment with objective measures of walking distance, such as treadmill testing, would enhance the validity and objectivity of a study of this nature. Nevertheless, the combined weight of previously published studies and their relatively similar rates of complications to our current study supports a conclusion that hypogastric occlusion is not a benign procedure. We would recommend, therefore, that neither inadvertent nor intentional hypogastric occlusion should be taken lightly during endovascular aneurysm repair. Embolization and occlusion of the hypogastric artery should be avoided, if possible, and consideration given to adjunctive surgical techniques to revascularize the hypogastric artery with direct prosthetic bypass graft or reimplantation to the external iliac artery. These procedures can be performed in most patients with a modified retroperitoneal approach, which poses minimal additional morbidity to the primary endovascular procedure. Hypogastric embolization and
occlusion should be reserved for patients with aneurysm of the hypogastric artery.

REFERENCES

DISCUSSION
Dr Glenn Hunter (Galveston, Tex). While we’re all familiar with the acute manifestations of bilateral internal iliac artery occlusion, the late manifestations of buttock claudications, vasculogenic radiculopathy, and impotence are not as well recognized. The internal iliac arteries are important collaterals that supply the viscera and musculature of the pelvis and hip. They communicate with the spinal, inferior mesenteric, inferior epigastric, and branches of the profunda femoris arteries. Patenty of one of the two arteries is essential to maintain the viability of the pelvic organs, cauda equina, and potency.

The internal iliac artery at its origin or more distal branches is often involved in patients with occlusive and less frequently decided aneurysmal dilatation. These vessels may be ligated during obstetrical and gynecological procedures and radical cystectomy or embolized to control pelvic hemorrhage or uterine fibroids, more recently.

Now we have another indication for selective embolization of one of these vessels. That is occlusion of the internal iliac arteries to prevent endolysis in patients with isolated iliac aneurysms or common iliac aneurysmal dilatation associated with abdominal aortic aneurysms.

Dr Lee and his colleagues describe the clinical course of 23 of 157 patients who had unilateral occlusion of an internal iliac artery. In 10 patients this was planned and inadvertent in the remaining 13. These two groups, as he has stated, were identical in age, male/female ratio, and duration of follow-up, approximately 15 months for both groups.

In 20 patients a modular bifurcated prosthesis was used, and in three, unilateral iliac aneurysms were treated. They use a disability index core ranging from 0 to 10 obtained by telephone to evaluate the severity of their patients’ symptoms. Nine of the 23, five planned, four inadvertent, developed hip or buttck claudication ipsilateral to the occluded artery.

Low deployment of the device occurred in 11 of the 13 in the inadvertent cases. All patients were evaluated either with CT or conventional angiography postoperatively and CT or duplex scanning at postoperative intervals. They noted no differences in the baseline disability scores in the early and postoperative periods in their patients.

I have a few questions for the authors. First, you state that all the symptoms became evident within the first postoperative days. The mean age of these patients is 73 years and from my limited experience with these patients, not all of them hop out of bed on the first or second day. Did you place them all on the treadmill? I realize this is a little facetious, but how do you detect claudication in the first day postoperatively?

Second, eight of the nine patients had some improvement in their symptoms and one did not. Why didn’t they all improve? The intent of intentionally occluding the hypogastric arteries is that you occlude all the branches as you do in this procedure so you have no retrograde flow. What was the reason for this? If you have contralateral flow and good flow from the profunda and the inferior epigastric and other collaterals, why didn’t these patients not all get better over time? Was this because there was unrecognized occlusive disease in the contralateral side or unrecognized profunda disease? Finally, were any of these patients impotent?

The incidence of buttck claudication following endovascular repair is reported in about 20% to 41% of patients followed up for relatively short intervals of 7 to 35 months. I’m somewhat less optimistic than you are about the long-term outcome of these patients. We are presently caring for a group of six patients with this syndrome following aortobifemoral bypass grafting for occlusive disease. Two of these patients are so severely incapacitated that they can barely do their housework. I think we need longer follow-up before we can make anymore definitive decisions about the effect of this procedure on the patients.

Dr W. Anthony Lee. I’d like to address each of Dr Hunter’s questions. First, the first question he asked was how was it that we were able to detect or say that their symptoms started on the first day. Actually, this was from direct questioning of the patients at the time of the interview. We did not gather their claudication symptoms, that information prospectively, and I think that is one of the shortcomings.

However, in regard to our regular regimen, we’ve done over 150 of these stent graft procedures, and we have a very aggressive program of getting them out of bed the first day. Despite their age, these patients are able to get up and walk around.

I think perhaps 4 to 15 months postoperative when this questionnaire was conducted, patient memories of whether their symptoms were noticed on the first day or the second day may have been a little bit clouded, but I think the important message to take away from this is that it is the onset of symptoms, as far as in their minds, was fairly early after the operation. The actual duration, whether it was 24, 36, or even 48 hours after the procedure, is not as important as how early these symptoms were noticed.

In regard to his second question, why didn’t all of the patients improve, in fact, in our series eight of the nine patients had demonstrated improvement. Only one did not, and that patient had only 4.9 months of follow-up at the time of this interview. One can possibly assume that if we were to question him maybe 5 or 6 months down the road, he may say that he has
demonstrated some improvement, but at the time of the interview at 5 months he did not.

As Dr Hunter suggested, these patients may indeed have harbored some occult occlusive disease on top of their aneurysmal disease. Indeed, at Stanford we have the benefit of very high-quality CT angiogram reconstructions, and when we’ve carefully analyzed our preoperative anatomy, some of these patients didn’t show the full arborization of their hypogastric arteries and did demonstrate focal occlusive disease. In fact, intactness of their profunda or their contralateral artery may not have provided sufficient cross-pelvic collateral to compensate for their symptoms.

The other comment was about whether our mean follow-up was only 15 months. If we carried this out to another year or two, their symptoms may come back completely baseline, but at the time of follow-up they showed incomplete improvement.

Regarding impotence, I’m glad Dr Hunter brought that up, and I kind of anticipated that question. We started out asking that exact question. We were also interested in it, but out of the 19 men of the 23 who had unilateral occlusions, we asked in several ways, trying to kind of get a sense of that, and to our surprise were a little bit disappointed. Over half of these patients really did not know. They could not give us a straight answer. Granted that, as I think Dr Moneta mentioned yesterday, we did not do our preoperative clinical evaluation go out and ask them, but really they could not tell.

Perhaps if we interviewed their wives and maybe asked a little bit more of a forward question in terms of when was their last sexual intercourse or something like that, maybe we would have gotten more of a black-and-white answer. However, we did not do that. We only interviewed the patients themselves. So we essentially had incomplete or bad data, and we elected not to include that in our analysis.

Lastly, Dr Hunter mentioned in his own series six of the patients who had aortofemoral bypasses had disabling claudication right now. I think as we know, occlusive and aneurysmal disease are fundamentally different, and I think these patients may have a slightly better outcome for patients who had occlusive disease.

Dr Linda Reilly (San Francisco, Calif). I just had a couple of questions. That’s a fairly high incidence of unplanned occlusion of the hypogastric, and I wonder if this was the learning curve part of your experience, and have you changed how you make your measurements or something to reduce that incidence? That’s my first question.

The second one is in your group that were embolized, can you give us any details about the location of the coils? In the very beginning we often would send these patients to IR to have the hypogastrics occluded preoperatively, and in the first few discovered the coils were all out in the branches. I think this can make a significant difference. Now we more commonly occlude these in the operating room, although some still in IR, and they’re occluded at the trunk level of hypogastric, which we think may improve this.

You may have said this. I might have missed it, but is this a standard disability type of assessment? Did you administer this preprocedure? If you didn’t and it’s not standard, how did you sort of know that it’s measuring what you wanted to? You really don’t have a baseline. I mean, obviously, people can sort of tell they’ve got a new symptom, but it’s not ideal to be administering your measuring instrument afterwards and not beforehand.

Dr Lec. Those are all good points. The first question regarding the learning curve, yes, most of these 13 unplanned occlusions occurred, I would say, in our first third of our experience. I think the Achilles’ heel of preoperative anatomic assessment and device selection of endovascular grafts is, in fact, the measurement from the renal to bifurcation length, which is required in all preoperative planning.

To this day, I don’t know of a good way of doing that. I think each of the methods, whether certainly using straight axial cuts on a CT scan versus using a fully graduated marker catheter on an angiogram or even doing computational analysis from three-dimensional reconstructions of spiral CTS, has its shortcomings. We haven’t figured out the answer. I think we may have a better gestalt sense now then when we first started, but certainly it was part of a learning curve effect.

Regarding localization of coils, in fact, one group, I think the Montefiore group, actually looked into this I think because intuitively, if you were not to occlude the hypogastric branches, it may yield a better outcome just occluding the trunk. Although we have not critically looked at that and have not asked our interventional radiologists who did perform the coil embolizations in all of these patients to specifically try to get to the trunks, in some of these patients with hypogastric aneurysms per se or somewhat wide necks, precise embolization of the trunk versus the branch vessels was not technically possible.

Regarding the questionnaire and our disability score scale, that’s kind of our own thing. It’s not a standardized scale that’s been previously published. I agree that there is a certain or even moderate amount of subjectivity to this and that maybe a more objective way of doing it is (1) getting a preoperative assessment before the operation and once again prospectively gathering this and (2) if we actually brought them back and did a kind of treadmill test where we actually could get a physical number of this distance prior to their claudication versus the patient saying, “Well, I think I used to walk a mile, but now I can walk only half a mile.” I think that is a shortcoming, but we did not do it in this case.

Dr Dennis Baker (Los Angeles, Calif). I was disappointed as was Glen Hunter that you weren’t able to get information on impotence or sexual function changes. I would recommend that anybody interested in this field would look at a standardized tool that’s been developed by the urologist. That has some very, very specific questions to try to define levels of sexual function before and after interventions.

Dr Lec. I agree.

Dr Roy Tawes (Scottsdale, Ariz). Dr Lee, I assume this is part of your informed consent, is it not?

Dr Lec. Yes.

Dr Tawes. If so, then the patients’ expectations are such that their satisfaction level would be higher because they have a realistic expectation of what the outcome is going to be, and if you remove a significant threat, like loss of life or limb, they can probably tolerate claudication as long as it’s not limiting or disabling. Is that correct?

Dr Lec. I would assume so.

Dr Dwight Murray. I know we talked about this when I was down there a couple of months ago that this was going to come up. This is good information, and obviously it raises yet another controversy in vascular surgery. I think I mentioned to you there was an abstract presented, I think, by Montefiore at Toronto that said you can deal with these things with I think the word was impunity. Dr Parodi rose to say that isn’t necessarily so. You are also saying that. I am rising actually to make a comment to ask those who have a larger pool of patients and fellows, that may be interested in this. The thought I had was to do stump pressures perhaps through lumen Fogarty occlusion catheter of the hypogastrics, which could be done at a preplanning arteriogram, and give us numbers on both sides. Maybe there’s a difference there. We’ve seen it. We just saw it a couple of weeks ago in a fellow who had removal of an infected graft, had ligated common iliacs and hypogastrics, and had a cauda equina syndrome, completely unpredictable. The patient got better in a couple of days, but nevertheless, this continues to be a controversy.

I would just make that comment. Thank you.