

**Regarding “Infected femoral artery pseudoaneurysm in drug addicts: The beneficial use of the internal iliac artery for arterial reconstruction”**

I read with great interest the article by Klonaris et al<sup>1</sup> and congratulate them for their excellent results on the surgical treatment of infected femoral artery pseudoaneurysms in drug addicts.<sup>1</sup> Surgical treatment options for femoral artery infected false aneurysms (fa-IFAs) in drug abusers have been extensively described in the literature.<sup>2,3</sup> Although there is no consensus statement for the ideal surgical approach, most recent reports support sole ligation-excision of the aneurysm and eradication of local sepsis.<sup>3,4</sup> However, there is no level I evidence to support these practices.<sup>3</sup> Klonaris et al presented excellent results in 9 of 14 patients with fa-IFAs, adopting the use of the internal iliac artery, as a patch or conduit, for lower limb revascularization.<sup>1</sup> It is one of the few articles in the English literature supporting immediate revascularization in the setting of fa-IFAs in drug addicts. This new approach in the field of aneurysmal disease in drug addicts supports our recommendation for revascularization procedures in this population.<sup>5</sup>

Our recent review raised concerns regarding the increased incidence of severe claudication and disability in most drug addicts not receiving revascularization.<sup>3</sup> Ligation-excision of a fa-IFA as a sole procedure increases the risk of limb ischemia and subsequent limb loss, and long-term claudication is common. We found an overall late amputation rate approaching 6.5% with sole fa-IFA ligation. Consequently, mild or severe claudication is expected in up to 44.3% of cases. I can hardly expect drug addicts, especially those continuing injection of illicit drugs, certainly with limited physical activities, to attend any exercise rehabilitation program. Therefore, improvement of pain-free distance is not a possible scenario in most of these patients. This disabling claudication necessitates late revascularization in most patients.<sup>2</sup> Surprisingly, a recent report supporting ligation of femoral vessels mentioned claudication and amputation rates up to 25%.<sup>4</sup> We certainly agree with Klonaris et al in that stable claudication symptoms may not be innocent in young addicts<sup>1</sup>; thus, the thesis of producing claudicant addicts must be reappraised and not be the rule. The fate of occasional trauma or perivascular inflammatory reactions may be disastrous in a lower limb lacking adequate blood perfusion.<sup>1</sup> Furthermore, severe claudicants lose the opportunity to regain a normal life free of injection of recreational drugs.<sup>3</sup> The ability to walk properly is of great importance in this social group in order to regain lost daily physical activity and also to improve health-related quality of life. With a view not only toward limb salvage, but also toward limb functionality, possibly sole ligation-excision of a fa-IFA is not the optimal solution, as previously believed.

Conversely, late infection and amputation rates approach 32.5% and 11.3%, respectively, in routine revascularization. Aneurysm ligation-excision with observation and selective revascularization in those limbs that seem in danger of critical ischemia yields approximately the same late amputation rate (12.6%).<sup>3</sup> However, Klonaris et al performed *in situ* reconstructions with biological grafts (mainly internal iliac artery) with no amputation or claudication. We had similar results but used short or long segments of the great saphenous vein, sometimes in the form of a sequential bypass.<sup>5</sup> We have only one concern regarding the use of the internal iliac artery for bypass. How many of the six patients with ipsilateral internal iliac artery interruption presented by Klonaris et al had sexual dysfunction on late follow-up? Certainly, the patency of the contralateral internal iliac artery reduces the possibility of this complication, but in a drug addict, collaterals in the pelvic and buttock region may not be sufficient, especially in large aneurysms, hematomas, or abscesses extending to the retroperitoneum. Furthermore, the amount of collateral formation does not predict later pelvic ischemia.

We recently stated that in an environment with the lowest risk of graft infection according to operative findings, especially if

common femoral artery or femoral bifurcation is involved, routine vein reconstruction is acceptable. This thesis can be expanded after the report of Klonaris et al saying that biological grafts used as revascularization materials are justified in drug addicts presented with complicated fa-IFAs, to rule out the possibility of disabling claudication in young patients.

In conclusion, the current option of the sole ligation of a fa-IFA in a drug addict, the most common current surgical policy, should probably be reappraised after Klonaris and associates' article reporting zero morbidity of the affected limb.

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doi:10.1016/j.jvs.2007.04.065

**Reply**

We much appreciate the comments of Georgiadis and colleagues regarding our article on the use of the internal iliac artery for arterial reconstruction in drug addicts with infected femoral pseudoaneurysms. Ligation of the femoral artery alone without revascularization is a common clinical practice that provides short-term safety; however, its mid- and long-term efficacy is often compromised because it frequently leads to claudication and even amputation. Therefore, in our opinion, immediate revascularization should be attempted in all these patients, most of whom are young.

With such a perspective, we decided to use the internal iliac artery either as a conduit or a patch, because it is an autologous tissue with inherent advantages, especially when placed in an infected surgical field—as is usually the case when dealing with femoral pseudoaneurysms secondary to intravascular drug abuse. We agree with Georgiadis and colleagues that the great saphenous vein can also be used for arterial reconstruction, but in these patients it is seldom available. Furthermore, even in cases for which the great saphenous vein has not been damaged by chronic direct injections and can be used, we still believe that the internal iliac artery may be preferable for the reasons described in our original article.

An interesting issue brought up in their letter is the possible consequences of internal iliac artery interruption in sexual function. Existing data suggest that there is a weak correlation between postoperative sexual dysfunction and hypogastric circulation, and the preservation of the hypogastric nerve plexus seems more important than preservation of internal iliac artery blood flow.<sup>1</sup> In a series of patients who underwent internal iliac artery coil embolization for endovascular treatment of abdom-