

# Inferior Mesenteric Artery Aneurysm: Case Report and Review of the Literature

Lazar B. Davidovic, Dragan M. Vasic and Momcilo I. Colic, Institute for Cardiovascular Diseases, Clinical Center of Serbia, Belgrade, Serbia and Montenegro.

Aneurysms of the inferior mesenteric artery are very rare. We report a new case associated with aorto-iliac occlusive disease and occlusion of the superior mesenteric artery, as well as review the pertinent literature. [*Asian J Surg* 2003;26(3):176-9]

## Introduction

Aneurysms of the inferior mesenteric artery (IMA) are infrequent, representing about 0.5% of all visceral arterial aneurysms.<sup>1-5</sup> We report one new case of IMA aneurysm associated with aorto-iliac arterial occlusive disease and occlusion of the superior mesenteric artery.

## Case report

A 65-year-old man was admitted to hospital with disabling claudication discomfort of both lower limbs. He was a cigarette smoker for more than 30 years, and had arterial hypertension and hypercholesterolaemia. Arterial pulses on both legs were absent, while the ankle systolic pressure indices were 0.30 on the left leg and 0.25 on the right. Translumbar aortography showed occlusion of the iliac arteries and superior mesenteric artery, and aneurysm of the proximal part of the IMA (Figure 1).

The patient underwent midline laparotomy with a transperitoneal approach to the abdominal aorta. The intraoperative findings revealed a 3.2 cm partially thrombosed IMA aneurysm.

Fifteen minutes of juxtarenal aortic clamping were necessary in order to perform proximal end-to-end anastomosis between the infrarenal aorta and a bifurcated knitted Dacron graft. Distal anastomoses were established in both deep femoral arteries. The IMA aneurysm was then completely resected, and

the IMA reimplemented into the body of the bifurcated Dacron graft (Figure 2).

Microscopic examination of the resected IMA aneurysm showed its atherosclerotic origin, with fragmentation of the media. The patient recovered well, and 1 year post-operatively, all grafts and reconstructed arteries were patent (Figure 3).



**Figure 1.** Translumbar aortography showed occlusion of both iliac arteries associated with an aneurysm of the proximal inferior mesenteric artery.

Address correspondence and reprint requests to Dr. Lazar Davidovic, Institute for Cardiovascular Diseases, Clinical Center of Serbia, 8 Koste Todorovica, Belgrade 11000, Serbia and Montenegro.  
E-mail: lazard@eunet.yu • Date of acceptance: 18<sup>th</sup> February, 2003

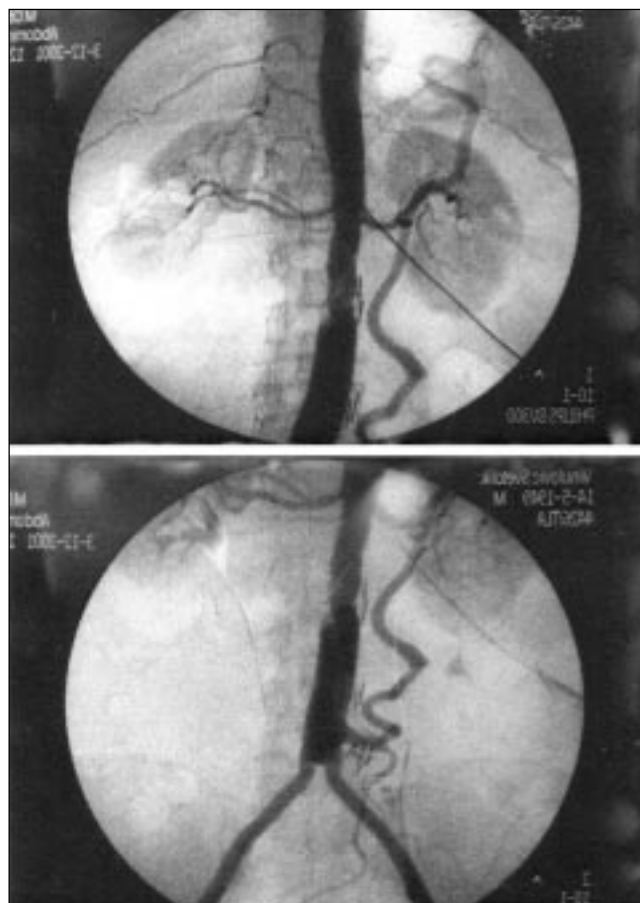


**Figure 2.** Reimplantation of the inferior mesenteric artery into the body of the bifurcated Dacron graft.

## Discussion

We found 32 cases of IMA aneurysms including our own (Table).<sup>3-29</sup> Of the presented cases, there were six women and 26 men. Patient age ranged from 9 to 84 years. The aneurysms were mostly atherosclerotic in origin, including our patient's.<sup>5,10-18,22,26</sup> The other causes of aneurysms were: infection,<sup>6,7</sup> Takayasu's disease,<sup>3,21</sup> dissecting haematoma,<sup>5,9</sup> false iatrogenic postoperative aneurysm,<sup>4</sup> and polyarteritis nodosa.<sup>12,23,28</sup> In most of the reported cases as well as in our own, the location of the aneurysm was in the proximal trunk of the artery. The IMA aneurysm in our patient was asymptomatic, as well as in 11 of the published cases.<sup>3,5,6,10,13,17-19,22,25,26</sup>

The most common circumstances leading to diagnosis were asymptomatic pulsatile abdominal mass,<sup>15,19,21</sup> abdominal pain,<sup>3,4,7,11,14</sup> low back pain,<sup>6</sup> and collapse or haemorrhagic shock due to rupture.<sup>5,8,12</sup> Standard abdominal ultrasound, computed tomography and angiography can be helpful in the diagnosis. Treatment of IMA aneurysm included resection,<sup>3,5,8,12,14,18,23,26</sup> ligation with exclusion,<sup>4</sup> resection and



**Figure 3.** Control angiography 1 year later showed a patent bifurcated Dacron graft, as well as the reimplanted inferior mesenteric artery and its collateral network.

reimplantation into the aorta, hypogastric artery or prosthesis,<sup>10,15,17,19,21</sup> and resection with bypass reconstruction.<sup>13,18,29</sup>

IMA aneurysm is a very rare condition that can be difficult to diagnose. Resection, with or without reconstruction, is the method of choice for its treatment.

## References

1. Stanley JC, Thompson NW, Fry WJ. Splanchnic artery aneurysms. *Arch Surg* 1970;101:689-97.
2. Deterling RA. Aneurysm of the visceral arteries. *J Cardiovasc Surg* 1971;12:309-23.
3. Cormier JM, Laurian C, Fichelle JM, et al. 44 aneurysms of digestive arteries. *Chirurgie* 1984;110:565-70. (In French)
4. Schaefer HC, McCoy S, Lin PY, et al. Aneurysm of the inferior mesenteric artery. *J Cardiovasc Surg* 1980;21:41-4.
5. Graham LM, Hay MR, Cho KJ, Stanley JC. Inferior mesenteric artery aneurysms. *Surgery* 1985;97:158-62.
6. Peacock J. Aneurysm of the inferior mesenteric artery, with small sacs in the ascending aorta illustrating the mode of formation. *Trans Pathol Soc London* 1861;12:73-5.
7. Rodet M. Ulcerative endocarditis; almost total absence of valve;

**Table.** Aneurysms of the inferior mesenteric artery

Author(s), year	Age, yr	Sex	Complaint	Aetiology	Treatment	Results
Peacock, 1861 <sup>6</sup>	30	M	Low back pain, vomiting	Mycotic	No	Died (Autopsy)
Rodet, 1864 <sup>7</sup>	41	M	Abdominal pain	Mycotic	No	Died (Autopsy)
Le Souef, 1951 <sup>8</sup>	29	F	Collapse, pregnancy	Unknown	No	Died (Autopsy)
Cormier et al, 1969 <sup>9</sup>	84	M	Abdominal pain, collapse	Dissecting	Colic and aneurysm resection	Died
Reid, 1971 <sup>see 5</sup>	61	M	Asymptomatic	Atherosclerotic	Resection	Alive
Duke et al, 1979 <sup>10</sup>	55	M	Asymptomatic	Atherosclerotic	Resection and reimplantation into prosthesis	Alive 6 mo
Lau et al, 1979 <sup>11</sup>	22	M	Abdominal pain, vomiting	Atherosclerotic	Non-surgical	Alive
Schaefer et al, 1980 <sup>4</sup>	66	F	Abdominal pain	Iatrogenic	Ligation	Well
Almgren et al, 1980 <sup>12</sup>	59	F	Asymptomatic	Atherosclerotic	Non-surgical	Alive 1 yr
	9	M	Shock	Polyarteritis nodosa	Resection	Well 1 mo
Vidal Barraquer et al, 1983 <sup>13</sup>	54	M	Asymptomatic	Atherosclerotic	Bypass Ao-IMA	Alive 1 mo
De Saint-Julien et al, 1983 <sup>14</sup>	56	F	Abdominal pain	Atherosclerotic	Resection	NA
Lagneau et al, 1984 <sup>15</sup>	63	M	Pulsatile mass	Atherosclerotic	Resection and reimplantation into hypogastric artery	Well 72 mo
Cormier et al, 1984 <sup>3</sup>	NA	M	Asymptomatic	NA	Non-surgical	Alive
	NA	F	Abdominal pain	Takayasu	Resection	Well 72 mo
Nino-Murcia et al, 1984 <sup>16</sup>	69	M	Asymptomatic	Atherosclerotic	Non-surgical	Alive
Graham et al, 1985 <sup>5</sup>	62	M	Asymptomatic	Atherosclerotic	Resection	Alive 64 mo
	54	M	Asymptomatic	Dissecting	Resection	Alive 48 mo
Le Bas et al, 1986 <sup>17</sup>	38	M	Asymptomatic	Atherosclerotic	Resection and reimplantation	Alive 48 mo
Fourmestraux et al, 1988 <sup>18</sup>	63	M	Asymptomatic	Atherosclerotic	Resection and bypass Ao-IMA	Well
Sugrue et al, 1990 <sup>19</sup>	79	M	Asymptomatic	NA	Resection and reimplantation into aorta	Well
			Pulsatile mass			
Tommasi et al, 1992 <sup>20</sup>	63	M	Asymptomatic	Atherosclerotic	Resection and reimplantation into aorta	Well
Yuasa et al, 1993 <sup>21</sup>	48	M	Pulsatile mass	Takayasu	Resection and reimplantation into prosthesis	NA
Garcia de la Torre et al, 1995 <sup>22</sup>	52	M	Asymptomatic	Atherosclerotic	NA	NA
Uflacker, 1996 <sup>23</sup>	NA	M	NA	Polyarteritis nodosa	Surgery	NA
Kato et al, 1996 <sup>24</sup>	54	F	Rupture	Arteritis	Surgery	Well
Raso et al, 1996 <sup>25</sup>	64	M	Asymptomatic	Atherosclerotic	Resection and reimplantation into prosthesis	Alive 8 mo
Sallou et al, 1997 <sup>26</sup>	66	M	Asymptomatic	Atherosclerotic	Resection	Alive 16 mo
Bonardelli et al, 1998 <sup>27</sup>	64	M	Asymptomatic	Atherosclerotic	Resection and bypass Ao-IMA	Alive 39 mo
Harada et al, 1999 <sup>28</sup>	51	M	Abdominal pain	Polyarteritis nodosa	Non-surgical	Alive
Hatzibaloglou et al, 1999 <sup>29</sup>	70	M	Pulsatile mass	NA	PTFE graft	Alive 5 mo
Present study, 2001	65	M	Asymptomatic	Atherosclerotic	Resection and reimplantation into prosthesis	Alive 12 mo

Ao = infrarenal abdominal aorta; IMA = inferior mesenteric artery; NA = not available; Takayasu = Takayasu's disease; PTFE = polytetrafluoroethylene.

- dilatation of left ventricle and pulmonary artery; inferior mesenteric artery aneurysms. *Mem Soc Sci Med Lyon* 1864;3:155-6. (In French)
8. Le Souef JD. Intra-abdominal haemorrhage during the later months of pregnancy, with reports on two cases. *Med J Aust* 1951;4:154-5.
  9. Cormier JM, Diebold J, Kalifat R, et al. Spontaneous arterial rupture caused by dissection of the inferior mesenteric artery. *Presse Med* 1969;77:971-3. (In French)
  10. Duke LJ, Lamberth WC Jr, Wright CB. Inferior mesenteric artery aneurysm: case report and discussion. *Surgery* 1979;85:385-7.
  11. Lau J, Mattox KL, De Bakey ME. Mycotic aneurysm of the inferior mesenteric artery. *Am J Surg* 1979;138:443-5.
  12. Almgren B, Eriksson I, Foucard T, et al. Multiple aneurysms of visceral arteries in a child with polyarteritis nodosa. *J Pediatr Surg* 1980;15:347-8.
  13. Vidal Barraquer F, Martinez Cercos R, Puncernau J, et al. Aneurysm of the inferior mesenteric artery. *J Cardiovasc Surg* 1983;24:677-80.
  14. De Saint-Julien J, Hamon M, Cazenave JC, Abgrall J. Ruptured aneurysm of the inferior mesenteric artery. *Chirurgie* 1983;109:113-5. (In French)
  15. Lagneau P, Charlier A, Gaux JC, Guize L. A large aneurysm of the inferior mesenteric artery. Apropos of a case. Review of the literature. *J Mal Vasc* 1984;9:143-7. (In French)
  16. Nino-Murcia M, Kurtz A, Wechsler RJ. Inferior mesenteric artery aneurysm: demonstration by computed tomography. *J Comput Assist Tomogr* 1984;8:564-6.
  17. Le Bas P, Batt M, Gagliardi JM, et al. Aneurysm of the inferior mesenteric artery associated with occlusion of the aorto-iliac trunk and the superior mesenteric artery. *Ann Chir Vasc* 1986;1:253-7. (In French)
  18. Fourmestraux J, Marzelle J, Dehni N, Dimaria G. Aneurysm of the inferior mesenteric artery. *Ann Cardiol Angeiol (Paris)* 1988;37:31-3. (In French)
  19. Sugrue ME, Mehigan D, Hedenman WP. Inferior mesenteric artery aneurysm. *J Cardiovasc Surg* 1990;31:380-1.
  20. Tommasi GV, Arcuri V, Barabino M, et al. Aneurysms of the visceral arteries: the diagnostic problems and therapeutic strategies. *G Chir* 1992;13:20-2.
  21. Yuasa H, Hiraiwa T, Tanaka K, et al. Aneurysm of the inferior mesenteric artery. *J Cardiovasc Surg* 1993;1:143-5.
  22. Garcia de la Torre A, Lozano P, Corominas C, et al. An aneurysm of the inferior mesenteric artery associated with obstruction of the superior mesenteric artery and the celiac trunk. *Rev Esp Enferm Dig* 1995;87:255-8. (In Spanish)
  23. Uflacker R. Interventional management of visceral arterial aneurysms. In: Strandness DE, ed. *Vascular Diseases: Surgical and Interventional Therapy*, 1<sup>st</sup> ed. New York: Churchill Livingstone, 1996;823-44.
  24. Kato T, Yamada K, Akiyama Y, et al. Ruptured inferior mesenteric artery aneurysm due to segmental mediolytic arteritis. *Cardiovasc Surg* 1996;4:644-6.
  25. Raso AM, Rispoli P, Maggio D, et al. Post stenotic aneurysm of the inferior mesenteric artery: case report and discussion. *J Cardiovasc Surg (Torino)* 1996;37:359-62.
  26. Sallou C, Cron J, Julia P, Fabiani JN. Aneurysm of the inferior mesenteric artery: case report and review of the literature. *Eur J Vasc Endovasc Surg* 1997;14:71-4.
  27. Bonardelli S, Tiberio GA, Belloni M, et al. Splanchnic aneurysms: 10 treated cases and review of the literature. *Ann Ital Chir* 1998;69:325-30. (In Italian)
  28. Harada M, Yoshida H, Ikeda H, et al. Polyarthrititis nodosa with mesenteric aneurysms demonstrated by angiography: report of a case and successful treatment of the patient with prednisolone and cyclophosphamide. *J Gastroenterol* 1999;34:702-5.
  29. Hatzibaloglou A, Saratzis N, Moros I, Dalainas V. Inferior mesenteric artery aneurysm. Case report. *Int Angiol* 1999;18:241-3.