a significantly greater patency, in the short and long term, in favor of the coated stent versus the free stent in complex lesions classified as type C and D of the TASC II.

Although the use of the coated stent in the aorta-iliac bifurcation is not widespread, some authors such as Sabri et al.[10] recommend its use since it provides better long-term patency (92%) than the free stent (62%). It has been seen that the aortic bifurcation coated stent provides greater laminar flow, decreased thrombogenicity, lower probability of plaque prolapse and less hyperplastic tissue growth compared to the free stent.

Endovascular treatment with kissing-coated stents in aorto-iliac occlusive disease is a low-invasive alternative that was effective in our case. After literature review we have not seen any case treated by this technique.

REFERENCES

1. Aikimbaev K, Akgul E, Aksungur E, Demir E, Erken U. Iliac artery stenosis as a cause of posttransplant renal failure and claudication. Int Urol Nephrol. 2007;39:1273–6.
2. Hypertension after renal transplantation [Internet]. Walthman (MA): UpToDate; 2016. Available from: http://www.uptodate.com/contents/hypertension-after-renal-transplantation [accessed 15.11.16].
3. Becker B, Odorico J, Becker Y, Leverson G, McDermott J, Grist T, et al. Peripheral vascular disease and renal transplant artery stenosis: a reappraisal of transplant renovascular disease. Clin Transplant. 1999;13:349–55.
4. Voiculescu A, Hollenbeck M, Plum J, Hetzel G, Mödder U, Pfeiffer T. Iliac artery stenosis proximal to a kidney transplant: clinical findings, duplex-sonographic criteria, treatment, and outcome. Transplantation. 2003;76:332–9.
5. Hollenbeck M, Kutkuhn B, Grabensee B. Colour Doppler ultrasound in the diagnosis of transplant renal artery stenosis. Bildgebung. 1994;61:248–54.
6. O'Neill W, Baumgarten D. Ultrasonography in renal transplantation. Am J Kidney Dis. 2002;39:663–78.
7. Rubin G. Spiral (helical) CT of the renal vasculature. Semin Ultrasound CT MRI. 1996;17:374–97.
8. Kobayashi K, Censullo M, Rossman L, Kyriakides P, Kahan B, Cohen A. Interventional radiologic management of renal transplant dysfunction: indications, limitations, and technical considerations. Radiographics. 2007;27:1109–30.
9. Mwipatayi BP, Sharma S, Daneshmand A, Thomas SD, Vijayan V, Altaf N. Durability of the balloon-expandable covered versus bare-metal stents in the Covered versus Balloon Expandable Stent Trial (COBEST) for the treatment of aortoiliac occlusive disease. J Vasc Surg. 2016;64, 83–94.e1.
10. Sabri SS, Choudhri A, Orgera G, Arslan B, Turba UC, Harthun NL. Outcomes of covered kissing stent placement compared with bare metal stent placement in the treatment of atherosclerotic occlusive disease at the aortic bifurcation. J Vasc Interv Radiol. 2010;21:995–1003.

Lucía Sobrino Díaz[a,*], Vicente Mosquera Rey[b], Minerva Rodríguez García[a], Manuel Alonso Pérez[b], Natalia Ridao Cano[a], Carmen Díaz Corte[c], Ahmad Amer Zanabili Al-Sibbai[b]

[a] *Área de Gestión Clínica de Nefrología, Hospital Universitario Central de Asturias, Oviedo, Asturias, Spain*
[b] *Servicio de Angiología y Cirugía Vascular, Hospital Universitario Central de Asturias, Oviedo, Asturias, Spain*
[c] *REDinREN, FRIAT, Spain*

[*] *Corresponding author.*
E-mail address: lucia.sobrino@gmail.com (L. Sobrino Díaz).

https://doi.org/10.1016/j.nefroe.2018.01.010

Heyde syndrome: Correction of anaemia after aortic valve replacement in a hemodialysis patient☆

Síndrome de Heyde: resolución de anemia tras reemplazo valvular aórtico en paciente en hemodiálisis

Dear Editor,

The coexistence of aortic stenosis (AS) and iron-deficiency anaemia due to gastrointestinal bleeding caused by angiodysplasia is known as Heyde syndrome. It was described in 1958 by Dr. Edward Heyde.[1] It is now defined by the triad of severe AS, coagulopathy due to acquired type 2A von Willebrand syndrome and anaemia secondary to angiodysplasia-induced gastrointestinal bleeding.[2–4] We present the case of a 63-year-old woman with chronic kidney disease (CKD) due to

DOI of original article:
http://dx.doi.org/10.1016/j.nefro.2017.05.002.
☆ Please cite this article as: Milla M, Hernández E, Mérida E, Yuste C, Rodríguez P, Praga M. Síndrome de Heyde: resolución de anemia tras reemplazo valvular aórtico en paciente en hemodiálisis. Nefrología. 2018;38:327–329.

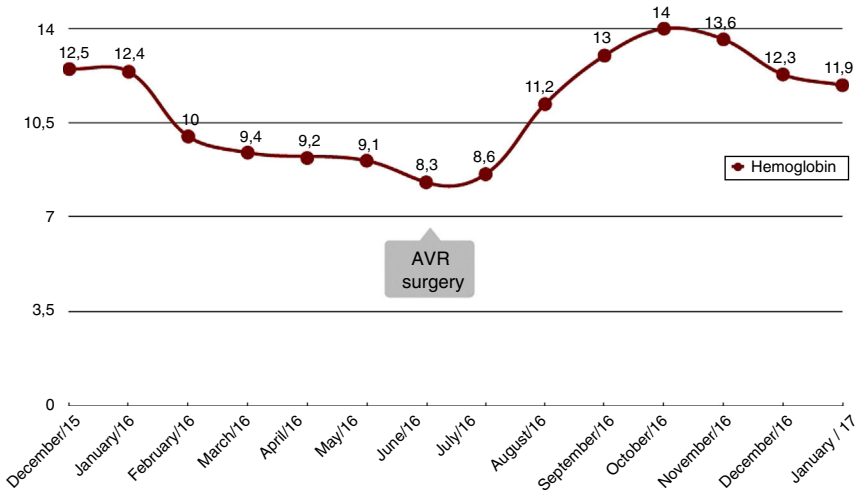

Fig. 1 – Changes in haemoglobin. AVR: aortic valve replacement.

reflux nephropathy, on haemodialysis since 1989, with a history of two kidney transplants, both grafts were lost due to acute rejection, severe mitral insufficiency with mitral valve replacement by mechanical prosthesis in 2002, requiring anticoagulant therapy with acenocoumarol, and with severe AS.

The patient presented with rectorrhagia and haematochezia in January 2016, with anaemia and a decrease in haemoglobin from 12.5 to 9 g/dl; the platelets were normal, the INR was within a suitable range and the transferrin saturation fell to 18%. She did not receive heparin during dialysis. Despite the increased provision of IV iron and the increased dose of erythropoietin from 12,000 to 24,000 IU weekly, she needed a mean of two packed red blood cell units per week to maintain haemoglobin levels around 10 g/dl (Fig. 1). The colonoscopy (Fig. 2) revealed erythematous lesions measuring 2–3 mm, which looked like small haematomas, without having the appearance of angiodysplasias, and there was no lesion which could be acted on. During the following weeks the bleeding was more intense thus additional transfusions were required each week. Another proctosigmoidoscopy was performed, which only showed fragility in the mucosa of the descending colon.

Coinciding with the anaemia, the patient presented with a worsening of her functional heart classification. The echocardiogram showed decreased LVEF, from 55% to 44%, and progression of the AS (valve area of 0.4 cm^2). The coronary angiogram showed no significant lesions. In June 2016, aortic valve replacement (AVR) was performed with an mechanical prosthesis ATS no. 21. The patient showed a complete resolution of symptoms of gastrointestinal bleeding in the first week after the AVR, indicating that the most probable cause was Heyde syndrome.

In the months after the AVR, the patient was asymptomatic, with no episodes of gastrointestinal bleeding, haemoglobin remained stable at 12 g/dl without the need for transfusions, IV iron has been suspended and the dose of erythropoietin has been reduced to 8000 IU per week. The patient was maintained on anticoagulation therapy with acenocoumarol in a suitable range.

Angiodysplasias are small, dilated, tortuous vessels with a diameter smaller than 1 cm. A 30–40% of gastrointestinal haemorrhages of unknown cause are related to angiodysplasias. They primarily cause gastrointestinal bleeding in the elderly and in patients with CKD. They can be detected earlier in patients with CKD, and are the principal cause of lower gastrointestinal bleeding (19–32%).[5]

The most common valve lesion in the elderly is AS. The prevalence of critical AS is 1–2% at 75 years and 6% at 85 years.[3,4] AS causes low-grade chronic hypoxia, which stimulates the formation of angiodysplasias.[3,5] Pate et al.[6] and Shoenfeld et al.[7] found a significant correlation between AS and gastrointestinal haemorrhage due to angiodysplasias.

The mechanism involved in AS which causes acquired type 2A von Willebrand syndrome is the mechanical disruption of the large vWF multimers due to the high tension caused by the turbulent flow when passing through the tight valve. Exposure to this tension causes a change in shape (from a

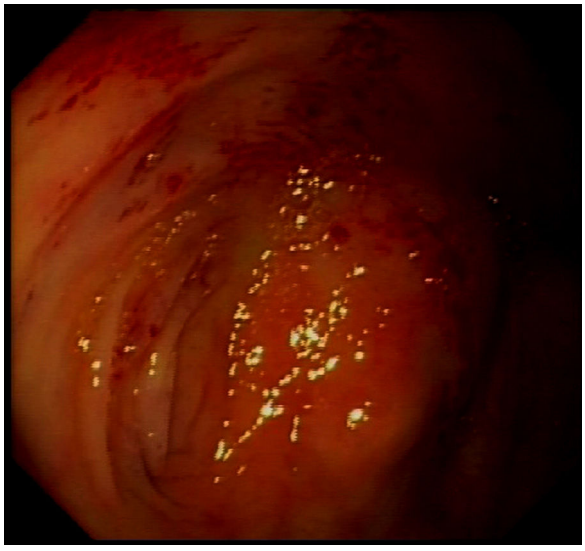

Fig. 2 – Colonoscopy. Caecal fundus with erythematous lesions measuring 2–3 mm which look like small haematomas due to mucosal fragility, bearing no resemblance to angiodysplasias. There is no lesion candidate of local treatment.

spiral structure to an elongated filament) so it is exposed to protease ADAMTS13 activity and triggers proteolysis, which reduces the number of high molecular weight (HMW) vWF multimers. HMW vWF multimers are important for haemostasis; they mediate platelet aggregation and adhesion to the subendothelium of the damaged blood vessels and in situations of high-speed blood flow. The angiodysplastic vessels themselves are associated with high-speed blood flow. In the absence of these multimers, prolonged bleeding would be expected.[2–4,8]

Endoscopic treatments, embolisation, surgery, hormone therapy or octreotide only elicit short-term success.[8] Stenotic valve replacement is the most effective treatment, as it corrects the blood supply to the intestine and the decreased HMW vWF multimers.[2–4,8] A review of the Mayo Clinic[9] presented 57 cases of Heyde syndrome treated with AVR, with a follow-up of 15 years. 79% of patients had no recurrence of bleeding, with a bioprosthesis as the valve of choice. King et al.[10] observed a decrease in gastrointestinal bleeding after AVR in 93% of patients.

In patients with AS who develop anaemia due to gastrointestinal bleeding, as well as assessing the most common causes (ulcers, neoplasms, ischaemic colitis, etc.), the possibility of HS should be considered. In patients presenting with gastrointestinal bleeding of unknown cause, AS must be ruled out. The most effective treatment for complete resolution of the symptoms is AVR.

REFERENCES

1. Heyde EC. Gastrointestinal bleeding in aortic stenosis. N Engl J Med. 1958;259:196.
2. Taguchi T, Watanabe M, Watadani K, Katayama K, Takahashi S, Takasaki T, et al. A case of Heyde syndrome: resolution following aortic valve replacement. Heart Surg Forum. 2014;17:E258–60.
3. Massyn MW, Khan SA. Heyde syndrome: a common diagnosis in older patients with severe aortic stenosis. Age Ageing. 2009;38:267–70.
4. Maor NR. Heyde syndrome: resolution of anemia after aortic valve surgery. Isr Med Assoc J. 2013;15:387–9.
5. Galanopoulos G. Angiodysplastic lesions as a cause of colonic bleeding in patients with chronic renal disease: is there an association? Saudi J Kidney Dis Transpl. 2012;23:925–8.
6. Pate GE, Chandavimol M, Naiman SC, Webb JG. Heyde's syndrome: a review. J Heart Valve Dis. 2004;13:701–12.
7. Shoenfeld Y, Eldar M, Bedazovsky B, Levy MJ, Pinkhas J. Aortic stenosis associated with gastrointestinal bleeding. A survey of 612 patients. Am Heart J. 1980;100:179–82.
8. İlkeli E, Albeyoğlu Ş, Çiloğlu U, Sabri D. Heyde's syndrome. Asian Cardiovasc Thorac Ann. 2014;22:592–4.
9. Thompson JL 3rd, Schaff HV, Dearani JA, Park SJ, Sundt TM 3rd, Suri RM, et al. Risk of recurrent gastrointestinal bleeding after aortic valve replacement in patients with Heyde syndrome. J Thorac Cardiovasc Surg. 2012;144:112–26.
10. King RM, Pluth JR, Giuliani ER. The association of unexplained gastrointestinal bleeding with calcific aortic stenosis. Ann Thorac Surg. 1987;44:514–6.

Mónica Milla*, Eduardo Hernández, Evangelina Mérida, Claudia Yuste, Paola Rodríguez, Manuel Praga

Servicio de Nefrología, Hospital Universitario 12 de Octubre, Madrid, Spain

* *Corresponding author.*
E-mail address: monica.milla15@gmail.com (M. Milla).

https://doi.org/10.1016/j.nefroe.2017.05.014

Hypotension in hemodialysis secondary to a reaction to synthetic membranes☆

Hipotensión en hemodiálisis secundario a una reacción a membranas sintéticas

Dear Editor,

We present the case of an 84-year-old female patient on haemodialysis with a history of diabetes mellitus, arterial hypertension, dyslipidaemia, uric gout, two-vessel coronary artery disease (AD/RC), apical necrosis, severe LV dysfunction and moderate aortic stenosis. She receives treatment with insulin, furosemide, sevelamer, atorvastatin, carvedilol, weekly IV iron sucrose and darbepoetin alpha 30 μg weekly. She is dialysed through a left internal radiocephalic

DOI of original article:
http://dx.doi.org/10.1016/j.nefro.2017.04.001.
☆ Please cite this article as: Delgado Córdova M, Blanco N, Azaña C. Hipotensión en hemodiálisis secundario a una reacción a membranas sintéticas. Nefrologia. 2018;38:329–330.