



Special Article

Proposal for updating the nomenclature of procedures and diagnostic tests in angiology, vascular and endovascular surgery

Propuesta de actualización del nomenclátor de procedimientos y pruebas diagnósticas en angiología, cirugía vascular y endovascular

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Abstract

Introduction: the current nomenclature of the Organización Médica Colegial (OMC) does not fully reflect contemporary Angiology and Vascular Surgery practice, particularly in the endovascular and hybrid fields.

Objective: to describe the development process of an updated proposal for a specialty-specific procedural nomenclature and to compare it with the current OMC block.

Material and methods: a structured consensus process using a modified Delphi method was conducted with representatives from the Spanish Society of Angiology, Vascular and Endovascular Surgery and its Chapters of Non-invasive Vascular Diagnosis, Phlebology and Lymphology, and Endovascular Surgery. After an exploratory review of the OMC nomenclature, three Delphi rounds and a final two-step refinement phase were completed. Consensus was defined as at least 75 % agreement within two consecutive complexity levels.

Results: the proposed nomenclature included 153 procedures. The current OMC Angiology and Vascular Surgery block contains 59 procedures distributed across six complexity levels (5, 7, 23, 11, 7 and 6 procedures in complexity levels 1 to 6, respectively). Among the 153 proposed procedures, 53 (34.6 %) had no strict equivalence in the current OMC nomenclature. In addition, 110 procedures (72 %) were assigned to complexity levels 5 to 8.

Conclusions: the consensus-based proposal substantially improves the representativeness and granularity of the specialty nomenclature and provides a technical basis for its institutional update.

Keywords:

Angiology.
Vascular surgery.
Nomenclature. Delphi method. Surgical complexity.

Received: 04/20/2026 • Accepted: 05/18/2026

Funding: this study received no specific external funding.

Conflicts of interest: the authors declared no conflicts of interest whatsoever.

Artificial intelligence: the authors declare that they used ChatGPT 5.4 (OpenAI) exclusively to support the linguistic and editorial review of the manuscript, as well as the correspondence between the procedures and the ICD-9 and ICD-10 classification codes. The authors reviewed and validated the final content and assume full responsibility for the publication.

Bellmunt-Montoya S, Gil Sala D, Rodríguez Carvajal R, Rodríguez Morata A. Proposal for updating the nomenclature of procedures and diagnostic tests in angiology, vascular and endovascular surgery. *Angiología* 2026;78(4):168-187

DOI: 10.20960/angiologia.00904

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Resumen

Introducción: el nomenclátor vigente de la Organización Médica Colegial (OMC) no refleja por completo la práctica contemporánea de la Angiología y Cirugía Vascular, especialmente en el ámbito endovascular e híbrido.

Objetivo: describir el proceso de desarrollo de una propuesta actualizada de nomenclátor de procedimientos para la especialidad y compararla con el bloque vigente de la OMC.

Material y métodos: se realizó un consenso estructurado mediante método Delphi modificado con representación de la SEACVE y de sus capítulos de Diagnóstico Vascular no Invasivo, Flebología y Linfología y Cirugía Endovascular. Tras una fase exploratoria de revisión del nomenclátor de la OMC, se desarrollaron tres rondas Delphi y una fase final de refinamiento en dos iteraciones. Se aceptó consenso cuando al menos el 75 % de los participantes coincidían en dos niveles de complejidad consecutivos.

Resultados: el nomenclátor propuesto incluyó 153 procedimientos. El bloque específico vigente de Angiología y Cirugía Vascular del nomenclátor de la OMC recoge 59 procedimientos, distribuidos en seis niveles de complejidad (5, 7, 23, 11, 7 y 6 procedimientos en complejidades 1 a 6, respectivamente). De los 153 procedimientos propuestos, 53 (34,6 %) no mostraron equivalencia estricta con ningún acto específico del nomenclátor de la OMC. Además, 110 procedimientos (72 %) se situaron en complejidades 5 a 8.

Conclusiones: la propuesta consensuada amplía de forma sustancial la representatividad y la granularidad del nomenclátor de la especialidad y ofrece una base técnica para su actualización institucional.

Palabras clave:
Angiología. Cirugía vascular. Nomenclátor. Método Delphi. Complejidad quirúrgica.

INTRODUCTION

Angiology and Vascular Surgery has undergone a highly relevant clinical and technological transformation in recent decades, driven by the consolidation of endovascular techniques, the incorporation of hybrid procedures, and increasing specialization in the management of arterial, venous, and lymphatic disease. This evolution has substantially modified the actual portfolio of procedures in the specialty, as well as its profile of technical and organizational complexity, as reflected in most clinical practice guidelines (1-4).

In Spain, the *Clasificación terminológica y codificación de actos y técnicas médicas* of the Organización Médica Colegial (OMC) constitutes the institutional reference framework for the naming, classification, and hierarchical organization of medical and surgical acts (5). It is an instrument with a long historical background and a vocation for progressive updating, conceived to organize health care activity and facilitate its comparison, assessment, and management. The nomenclature of each specialty is intended to be renewed periodically, although this is not always possible because of various factors, often administrative in nature (6).

In the case of Angiology and Vascular Surgery, the specific block of the current nomenclature identifies the specialty as “07 Angiología y Cirugía

Vascular” and includes 59 procedures distributed across 6 levels of complexity: 5 procedures of complexity 1, 7 of complexity 2, 23 of complexity 3, 11 of complexity 4, 7 of complexity 5, and 6 of complexity 6.⁵ In addition, the document itself expressly states that diagnostic and therapeutic endovascular techniques are included in the diagnostic imaging section and not within the specific block of the specialty; therefore, the competencies of our professionals regarding these techniques are not explicitly recognized (5).

This structure is useful as a historical framework, but it has limitations in reflecting contemporary practice. Numerous procedures that are now consolidated, especially endovascular, percutaneous, and hybrid procedures, are not explicitly included or are absorbed into broad categories, reducing the descriptive capacity of the nomenclature and making comparative analysis between centers, stratification by complexity, and adequate assessment of health care activity more difficult (5).

Therefore, the development of an updated and consensual nomenclature proposal for Angiology and Vascular Surgery was undertaken, aligned with the OMC complexity structure and representative of current clinical practice in Spain. This study describes the methodology used for its development and summarizes the main results of the consensus process.

OBJECTIVE

To describe the development process of an updated proposal for a procedure nomenclature in Angiology and Vascular Surgery and to compare it with the current specific block of the OMC nomenclature.

MATERIAL AND METHODS

Study design

We conducted a structured consensus process using a modified Delphi method to develop an updated proposal for a procedure nomenclature in Angiology and Vascular Surgery. This methodology was selected because of its usefulness in transforming expert opinion into group consensus through successive rounds, controlled feedback, and iterative reassessment (7,8).

Expert panel

The expert panel consisted of members of the governing boards of the Sociedad Española de Angiología y Cirugía Vascular y Endovascular (SEACVE), the Noninvasive Vascular Diagnosis Chapter, the Phlebology and Lymphology Chapter, and the Endovascular Surgery Chapter (Table I). This composition allowed balanced representation of the main clinical, diagnostic, and therapeutic areas of the specialty.

Exploratory phase

As an initial phase, the current OMC nomenclature was exhaustively reviewed and compared with the usual health care practice of the specialty. This review confirmed that the specific block for Angiology and Vascular Surgery included 59 procedures and that part of the vascular techniques were distributed across other sections of

the document, especially diagnostic imaging (5). Based on this analysis, consolidated procedures not explicitly included, underrepresented techniques, conceptual duplications, and excessively aggregated categories were identified. A preliminary list of procedures was then developed and used as the basis for the consensus process. The same process was also performed for diagnostic tests.

Table I. Expert panel and the societies they represented through membership of their governing boards during the development of the Nomenclature (in alphabetical order)

SEACVE

Dr. Marta Ballesteros
Dr. Sergi Bellmunt
Dr. Elena Iborra
Dr. José Ramón March
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Delphi process

The Delphi process was conducted in 3 successive rounds. In the first round, the relevance of each procedure and its terminological adequacy were reviewed. In the second round, accepted procedures underwent an initial complexity classification using Likert-type scales aligned with the levels of the OMC nomenclature. In the third round, anonymized results from the previous round were redistributed to promote convergence and reduce response dispersion, following the classic methodological principles of the Delphi method (7,8).

Consensus criterion

Consensus was considered to have been reached when at least 75 % of participants agreed on assigning a procedure to 2 consecutive levels of complexity. This criterion was adopted to allow reasonable grading of borderline procedures and to avoid artificially rigid classifications.

Final refinement phase

After the Delphi rounds, an additional refinement phase was carried out in 2 iterations by a small group of 4 professionals, 1 representing each participating entity (SBM, DGS, RRC, and ARM). During this phase, similarities between procedures, conceptual overlap, terminological heterogeneity, and residual discrepancies were reviewed, and the necessary reclassifications were proposed to obtain a coherent, homogeneous, and clinically applicable final structure.

Ethical considerations

The study was based on an expert consensus process on procedure classification and did not include patients, individualized clinical data, or experimentation in humans or animals.

RESULTS

The consensus process resulted in an expanded nomenclature proposal with 153 procedures (Table II). Compared with the 59 procedures included in the specific Angiology and Vascular Surgery block of the current OMC nomenclature, this represents an increase of 94 procedures and multiplies by 2.6 the number of explicitly listed medical acts (5).

Of the 153 procedures included in the proposal, 53 (34.6 %) showed no strict equivalence with any specific act in the current OMC nomenclature. These procedures mainly corresponded to endovascular, percutaneous, or minimally invasive techniques, as well as hybrid procedures.

In terms of complexity, the consensus proposal was distributed as follows: 2 procedures of complexity 1, 6 of complexity 2, 14 of complexity 3, 21 of complexity 4, 26 of complexity 5, 39 of complexity 6, 25 of complexity 7, and 20 of complexity 8. Overall, 110 of the 153 procedures (72 %) were placed at complexity level 5 or higher, reflecting a health care profile markedly shifted toward high- and very-high-complexity procedures.

In contrast, the current OMC nomenclature concentrates the specialty within complexities 1 to 6, with a predominance of complexity 3 (23 procedures; 39.0 % of the total) and without specific representation of complexities 7 or 8 within the Angiology and Vascular Surgery block (5). This difference suggests that the current structure undervalues or excessively aggregates part of contemporary vascular activity, especially that related to modern endovascular procedures.

In addition, 36 diagnostic tests were described and classified according to complexity (Table III). These 36 diagnostic tests were distributed as follows: 3 tests (8.3 %) in complexity 1, 4 (11.1 %) in complexity 2, 1 (2.8 %) in complexity 3, 11 (30.6 %) in complexity 4, 10 (27.8 %) in complexity 5, and 7 (19.4 %) in complexity 6. Overall, the distribution showed a clear predominance of intermediate-high complexity tests, because categories 4 and 5 alone included 21 of the 36 examinations (58.3 %), whereas complexity 6 tests accounted for almost one fifth of the total.

Table II. Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Minor amputation of one or more toes	1	OY6T0Z0	Complete amputation of toe, open approach	84.11	Amputation of toe
Drainage/debridement	1	OJBM0ZZ	Excision of subcutaneous tissue and fascia, left thigh, open approach	83.39	Excision of lesion of other soft tissue
Aortography	2	B4101ZZ	Fluoroscopy of abdominal aorta with low-osmolar contrast	88.42	Aortography
Unilateral arteriography of lower or upper limbs	2	B41D1ZZ	Fluoroscopy of aorta and bilateral lower-extremity arteries with low-osmolar contrast	88.42	Aortography
Decompressive fasciotomies	2	OKNQ0ZZ	Release of right thigh muscle, open approach	83.91	Lysis of adhesions of muscle, tendon, fascia, and synovial bursa
Unilateral phlebography of lower or upper limbs	2	B51C1ZZ	Fluoroscopy of unilateral lower-extremity veins with low-osmolar contrast	88.66	Phlebography of peripheral veins with contrast
Implantation/removal of temporary central venous catheter or PICC	2	O5HN33Z	Insertion into left internal jugular vein of infusion device, percutaneous approach	38.93	Venous catheterization, not elsewhere classified
Ligation of lower-limb vein	2	O6LY0ZZ	Occlusion of lower vein, open approach	38.80	Unspecified site
Bilateral arteriography of lower or upper limbs	3	B41D1ZZ	Fluoroscopy of aorta and bilateral lower-extremity arteries with low-osmolar contrast	88.42	Aortography
Selective arteriography of supra-aortic trunks	3	B3151ZZ	Selective fluoroscopy of supra-aortic trunks with low-osmolar contrast	88.41	Cerebral arteriography
Diagnostic arteriography or phlebography	3	B41B1ZZ	Fluoroscopy of other intra-abdominal arteries with low-osmolar contrast	88.47	Arteriography of other intra-abdominal arteries
Abdominal visceral arteriography, celiac trunk, superior and inferior mesenteric arteries	3	B41B1ZZ	Diagnostic fluoroscopy of abdominal visceral arteries with low-osmolar contrast	88.47	Arteriography of other intra-abdominal arteries
Fistulography	3	B51W1ZZ	Fluoroscopy of dialysis fistula/shunt with low-osmolar contrast	88.67	Phlebography of other specified areas using contrast medium

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Crossectomy, saphenofemoral or popliteal junction	3	06LY0ZZ	Occlusion of lower vein, open approach	38.80	Unspecified site
Ultrasound-guided sclerotherapy of tributary varicose veins	3	36468ZZ	Ultrasound-guided sclerotherapy of tributary varicose veins	39.92	Injection of sclerosing agent into vein
Phlebectomy of tributary varicose veins	3	06BP0ZZ	Excision of right saphenous vein, open approach	38.39	Lower-limb veins
Bilateral phlebography of lower or upper limbs	3	B51D1ZZ	Fluoroscopy of bilateral lower-extremity veins with low-osmolar contrast	88.66	Phlebography of peripheral veins with contrast
Implantation/removal of tunneled central venous catheter or port	3	05HM33Z	Insertion into right internal jugular vein of infusion device, percutaneous approach	38.93	Venous catheterization, not elsewhere classified
Central catheter implantation	3	05HN33Z	Insertion into left internal jugular vein of infusion device, percutaneous approach	38.93	Venous catheterization, not elsewhere classified
Port implantation	3	0JH60XZ	Insertion into subcutaneous tissue and fascia, chest, of tunneled vascular access device, open approach	38.93	Venous catheterization, not elsewhere classified
Ligation of deep-system limb vein or perforator veins	3	06LY0ZZ	Occlusion of lower vein, open approach	38.80	Unspecified site
Exchange of tunneled central venous catheter or port	3	02WY33Z	Revision in great vessel of infusion device, percutaneous approach	38.05	Other thoracic vessels
Endoluminal cyanoacrylate ablation, bilateral saphenous axis	4	06VP3HZ	Percutaneous endoluminal occlusion of saphenous vein with cyanoacrylate	39.92	Injection of sclerosing agent into vein
Endoluminal cyanoacrylate ablation, unilateral saphenous axis	4	06VP3HZ	Percutaneous endoluminal occlusion of saphenous vein with cyanoacrylate	39.92	Injection of sclerosing agent into vein
Mechanochemical endoluminal ablation, MOCA, bilateral saphenous axis	4	06VP3ZZ	Restriction of right saphenous vein, percutaneous approach	39.79	Other endovascular procedures on other vessels
Mechanochemical endoluminal ablation, MOCA, unilateral saphenous axis	4	06VP3ZZ	Restriction of right saphenous vein, percutaneous approach	39.79	Other endovascular procedures on other vessels
Thermal endoluminal ablation, saphenous axis, laser or RF, bilateral	4	06VP3DZ	Restriction of right saphenous vein with intraluminal device, percutaneous approach	39.79	Other endovascular procedures on other vessels

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Thermal endoluminal ablation, saphenous axis, laser or RF, unilateral	4	06VP3DZ	Restriction of right saphenous vein with intraluminal device, percutaneous approach	39.79	Other endovascular procedures on other vessels
Amputation, except toes and major disarticulations	4	0Y6J0Z0	Below-knee amputation of lower limb, open approach	84.15	Below-knee amputation
Simple unilateral femoropopliteal angioplasty	4	047K3ZZ	Dilation of right femoral artery, percutaneous approach	00.40	Procedure on a single vessel
Simple unilateral iliac angioplasty	4	047C3ZZ	Dilation of right common iliac artery, percutaneous approach	00.40	Procedure on a single vessel
Surgical vascular biopsy	4	03BT0ZX	Excision of left temporal artery, diagnostic, open approach	38.21	Biopsy of blood vessel
Cavernosography	4	B54B1ZZ	Fluoroscopy of corpora cavernosa with low-osmolar contrast	89.29	Other diagnostic procedures on penis
Embolization of pseudoaneurysm	4	04LY3DZ	Occlusion of peripheral artery with intraluminal device, percutaneous approach	39.79	Other endovascular procedure on peripheral vessels
Unilateral gonadal embolization. Pelvic venous insufficiency	4	06LY3DZ	Occlusion of lower vein with intraluminal device, percutaneous approach	38.80	Unspecified site
Ultrasound-guided sclerotherapy of saphenous axis	4	36471ZZ	Ultrasound-guided sclerotherapy of saphenous axis	39.92	Injection of sclerosing agent into vein
Ultrasound-guided sclerotherapy of perforator veins	4	06LY3ZZ	Occlusion of peripheral vein, percutaneous approach	39.92	Injection of sclerosing agent into vein
CHIVA surgical strategy for superficial venous insufficiency	4	06BP0ZZ	Excision of right saphenous vein, open approach	38.39	Lower-limb veins
Percutaneous arteriovenous fistula for dialysis	4	03183JD	Percutaneous creation of peripheral arteriovenous fistula with intraluminal device	39.29	Other vascular shunt or bypass, peripheral
Arteriovenous fistulas for hemodialysis without prosthesis	4	031809D	Bypass of left brachial artery to arm vein with autologous venous tissue, open approach	39.29	Other vascular shunt or bypass, peripheral

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Surgical stripping of saphenous axis	4	06BP0ZZ	Excision of right saphenous vein, open approach	38.39	Lower-limb veins
Implantation/removal of temporary vena cava filter	4	06H03DZ	Insertion into inferior vena cava of intraluminal device, percutaneous approach	38.7	Interruption of vena cava
Fistula ligation	4	03LY0ZZ	Occlusion of peripheral artery, open approach	38.80	Other surgical occlusion of vessels
Femoropopliteal sector aneurysms: treatment with stent-graft	5	04VK3DZ	Restriction of right femoral artery with intraluminal device, percutaneous approach	39.79	Other endovascular procedures on other vessels
Venous angioplasty/stenting of 1 lower-limb sector, iliac, femoral, or popliteal	5	067Y3DZ	Dilation of lower vein with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Venous angioplasty/stenting of 1 upper-limb sector, axillary, subclavian, or jugular	5	057Y3DZ	Dilation of upper-limb vein with intraluminal device, percutaneous approach	39.50	Angioplasty or atherectomy of other noncoronary vessel
Unilateral femoropopliteal angioplasty + stent-graft	5	047K3DZ	Dilation of right femoral artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Unilateral iliac angioplasty + stent-graft	5	047C3DZ	Dilation of right common iliac artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Simple bilateral femoropopliteal angioplasty	5	047L3ZZ	Dilation of left femoral artery, percutaneous approach	00.40	Procedure on a single vessel
Simple bilateral iliac angioplasty	5	047D3ZZ	Dilation of left common iliac artery, percutaneous approach	00.40	Procedure on a single vessel
Open aortoiliac or subclavian trunk embolectomy	5	04C00ZZ	Extirpation in abdominal aorta, open approach	00.40	Procedure on a single vessel
Open peripheral embolectomy of lower or upper limbs, transfemoral or transhumeral	5	04CK0ZZ	Extirpation in right femoral artery, open approach	00.40	Procedure on a single vessel
Bilateral gonadal embolization. Pelvic venous insufficiency	5	06LY3DZ	Occlusion of lower vein with intraluminal device, percutaneous approach	38.80	Unspecified site
Embolization, pelvic venous insufficiency	5	06LY3DZ	Occlusion of lower vein with intraluminal device, percutaneous approach	38.80	Unspecified site
Embolization of hypogastric vein and branches. Pelvic venous insufficiency	5	06LC3DZ	Occlusion of right common iliac vein with intraluminal device, percutaneous approach	38.87	Abdominal veins

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Congenital arteriovenous fistulas. Ligation	5	03LY0ZZ	Occlusion of upper artery, open approach	38.80	Unspecified site
External carotid ligation	5	03LM0ZZ	Occlusion of right external carotid artery, open approach	38.82	Surgical occlusion of other head and neck vessels
Stump, amputation, regularization, reamputation	5	0Y6J0Z0	Amputation of lower limb, infrapatellar level, open approach	84.15	Other below-knee amputation
Simple repair of postpuncture femoral, humeral, or radial pseudoaneurysm	5	04QK0ZZ	Repair of right femoral artery, open approach	39.31	Suture of artery
Vascular access salvage for hemodialysis	5	03WY37Z	Revision in upper artery of autologous tissue substitute, percutaneous approach	38.00	Unspecified site
Unilateral endovascular treatment of tibial vessels	5	047P3ZZ	Dilation of right anterior tibial artery, percutaneous approach	00.40	Procedure on a single vessel
Endovascular treatment of the femoropopliteal sector	5	047K3DZ	Dilation of right femoral artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Endovascular treatment of the iliofemoral sector	5	047J3DZ	Dilation of left external iliac artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Endovascular treatment of the infrapopliteal sector	5	047P3DZ	Dilation of right anterior tibial artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Surgical treatment of perforator veins	5	06LY0ZZ	Occlusion of perforator veins or limb veins, open approach	38.80	Other surgical occlusion of vessels
Superficial vascular trauma with simple ligation or suture of peripheral vessel	5	04QK0ZZ	Repair of right femoral artery, open approach	39.31	Suture of artery
Percutaneous venous thrombectomy. Upper limbs	5	05CY3ZZ	Extirpation of thrombus from upper-limb vein, percutaneous approach	39.79	Endovascular venous thrombectomy
Percutaneous venous thrombectomy. Femoropopliteal sector	5	06CY3ZZ	Extirpation of thrombus from lower-limb vein, percutaneous approach	39.79	Endovascular venous thrombectomy
Catheter-guided locoregional thrombolysis of lower or upper limbs	5	3E05317	Introduction into peripheral artery of thrombolytic agent, other thrombolytic, percutaneous approach	99.10	Injection or infusion of thrombolytic agent
Venous angioplasty/stenting of 2 or more lower- or upper-limb sectors	6	067Y3DZ	Dilation of lower vein with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Angioplasty + stent-graft of visceral arteries	6	04713DZ	Dilation of celiac artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Bilateral femoropopliteal angioplasty + stent-graft	6	047L3DZ	Dilation of left femoral artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Bilateral iliac angioplasty + stent-graft	6	047D3DZ	Dilation of left common iliac artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Aortic angioplasty	6	04703ZZ	Dilation of abdominal aorta, percutaneous approach	00.40	Procedure on a single vessel
Bilateral renal angioplasty + renal stent-graft	6	04793DZ	Dilation of right renal artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Unilateral renal angioplasty + renal stent-graft	6	04793DZ	Dilation of right renal artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Bilateral renal angioplasty	6	04793ZZ	Dilation of right renal artery, percutaneous approach	00.40	Procedure on a single vessel
Unilateral renal angioplasty	6	04793ZZ	Dilation of right renal artery, percutaneous approach	00.40	Procedure on a single vessel
Extra-anatomic axillofemoral or obturator femoropopliteal bypass	6	041K0JL	Bypass from right femoral artery to popliteal artery with synthetic substitute, open approach	39.29	Other vascular shunt or bypass, peripheral
Unilateral axillofemoral or femorofemoral extra-anatomic bypass. Vascular grafts	6	041K0JJ	Bypass from right femoral artery to left femoral artery with synthetic substitute, open approach	39.29	Other vascular shunt or bypass, peripheral
Femoral-distal bypass with prosthesis	6	041K0JM	Bypass from right femoral artery to peroneal artery with synthetic substitute, open approach	39.29	Other vascular shunt or bypass, peripheral
Femoral-distal bypass with vein	6	041K09M	Bypass from right femoral artery to peroneal artery with autologous venous tissue, open approach	39.29	Other vascular shunt or bypass, peripheral
Femoropopliteal bypass with prosthesis	6	041K0JL	Bypass from right femoral artery to popliteal artery with synthetic substitute, open approach	39.29	Other vascular shunt or bypass, peripheral

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Femoropopliteal bypass with vein	6	041K09L	Bypass from right femoral artery to popliteal artery with autologous venous tissue, open approach	39.29	Other vascular shunt or bypass, peripheral
Humerohumeral or humerodistal bypass	6	041A09Q	Bypass from brachial artery to brachial or distal artery with autologous venous tissue, open approach	39.29	Other vascular shunt or bypass, peripheral
Subclavian-humeral, axillohumeral, or humerodistal bypass	6	04160JQ	Bypass from subclavian or axillary artery to brachial or distal artery with synthetic substitute, open approach	39.29	Other vascular shunt or bypass, peripheral
Venovenous bypass of lower or upper limb	6	061K09N	Peripheral venovenous bypass with autologous venous tissue, open approach	39.29	Other vascular shunt or bypass, peripheral
Hip or shoulder disarticulation	6	0X6C0Z0	Hip or shoulder disarticulation, open approach	84.18	Hip disarticulation
Embolization of visceral aneurysm	6	04L13DZ	Occlusion of abdominal visceral artery with intraluminal device, percutaneous approach	38.86	Endovascular occlusion of abdominal arteries
Preoperative embolization of digestive arteries	6	04L13DZ	Occlusion of digestive artery with intraluminal device, percutaneous approach	38.86	Endovascular occlusion of abdominal arteries
Embolization of erectile dysfunction due to venous leak	6	06LY3DZ	Occlusion of lower vein with intraluminal device, percutaneous approach	38.80	Unspecified site
Femoropopliteal endarterectomy with or without patch	6	04CY0ZZ	Extirpation of material from peripheral artery, open approach	38.18	Endarterectomy of lower-limb arteries
Endarterectomy and profundoplasty	6	04CY0ZZ	Femoral endarterectomy/profundoplasty, open approach	38.18	Endarterectomy of lower-limb arteries
Catheter-directed fibrinolysis for arterial thrombosis	6	3E05317	Introduction into peripheral artery of thrombolytic agent, other thrombolytic, percutaneous approach	99.10	Injection or infusion of thrombolytic agent
Venous stent implantation, vena cava or branches	6	06703DZ	Dilation of inferior vena cava with intraluminal device, percutaneous approach	39.50	Angioplasty or atherectomy of other noncoronary vessel
Interventions for hemorrhage	6	04L13DZ	Endovascular occlusion of bleeding arterial vessel with intraluminal device	38.86	Endovascular occlusion of abdominal arteries

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Aortoiliac recanalization	6	04703DZ	Dilation of abdominal aorta with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Cervicothoracic sympathectomy	6	01BL0ZZ	Excision of thoracic sympathetic nerve, open approach	05.25	Periarterial sympathectomy
Lumbar or subdiaphragmatic sympathectomy	6	01BM0ZZ	Excision of abdominal sympathetic nerve, open approach	05.25	Periarterial sympathectomy
Vascular thoracic outlet syndrome	6	03BS0ZZ	Excision of cervical rib or first rib, open approach	77.91	Excision of bone for thoracic decompression
Endovascular treatment, descending thoracic aorta	6	02VW3DZ	Restriction of descending thoracic aorta with intraluminal device, percutaneous approach	39.73	Endovascular implantation of graft in thoracic aorta
Endovascular treatment of abdominal aortic branches, visceral, hypogastric	6	04713DZ	Dilation of celiac artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Bilateral endovascular treatment of tibial vessels	6	047Q3DZ	Dilation of left anterior tibial artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Endovascular treatment, aortoiliac sector	6	04703DZ	Dilation of abdominal aorta with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Open surgical treatment of peripheral arterial aneurysm of upper or lower limbs	6	04QY0ZZ	Open repair of peripheral artery	39.31	Suture of artery
Percutaneous venous thrombectomy. Inferior vena cava and branches	6	06C03ZZ	Extirpation of thrombus from inferior vena cava, percutaneous approach	39.79	Endovascular venous thrombectomy
Percutaneous venous thrombectomy. Superior vena cava and branches	6	05C13ZZ	Extirpation of thrombus from superior vena cava or tributaries, percutaneous approach	39.79	Endovascular venous thrombectomy
Percutaneous venous thrombectomy. Iliofemoral sector	6	06CY3ZZ	Extirpation of thrombus from iliofemoral vein, percutaneous approach	39.79	Endovascular venous thrombectomy
Angiodysplasias and lymphangiomas. Surgical treatment	7	0HXB0ZZ	Excision of vascular/lymphatic malformation, open approach	86.4	Excision of lesion of skin and subcutaneous tissue
Carotid angioplasty + stent	7	037K3DZ	Dilation of right internal carotid artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Bilateral aortoiliac or aortofemoral bypass	7	04100JH	Bypass from abdominal aorta to right femoral artery with synthetic substitute, open approach	39.25	Aortoiliac-femoral bypass
Unilateral aortoiliac or aortofemoral bypass	7	04100JG	Bypass from abdominal aorta to bilateral external iliac arteries with synthetic substitute, open approach	39.25	Aortoiliac-femoral bypass
Bypass from aorta to proximal extrathoracic supra-aortic trunk	7	02100JQ	Bypass from aorta to proximal extrathoracic supra-aortic trunk with synthetic substitute, open approach	39.23	Other intrathoracic vascular shunt or bypass
Iliopopliteal bypass via obturator route	7	041C0JL	Iliopopliteal bypass via obturator route with synthetic substitute, open approach	39.25	Aortoiliac-femoral bypass
Abdominopelvic venovenous bypass	7	06100JX	Abdominopelvic venovenous bypass with synthetic substitute, open approach	39.26	Other intra-abdominal vascular shunts or bypasses
Surgery of supra-aortic trunks	7	03CJ0ZZ	Extirpation in left common carotid artery, open approach	00.40	Procedure on a single vessel
Open visceral embolectomy, abdomen	7	04C10ZZ	Extirpation of thrombus from abdominal visceral artery, open approach	38.16	Embolectomy of abdominal arteries
Embolization of endoleak	7	04V03DZ	Restriction of abdominal aorta with intraluminal device, percutaneous approach	39.71	Endovascular implantation of graft in abdominal aorta
Surgical femoral/subclavian/popliteal endophlebectomy	7	06CK0ZZ	Endophlebectomy or open venous thrombectomy	38.09	Lower-limb veins
Extraction of endovascular foreign bodies	7	06PY3DZ	Removal from lower vein of intraluminal device, percutaneous approach	38.09	Lower-limb veins
Complex arteriovenous fistulas: with bypass or repairs	7	031Y0JD	Complex peripheral arteriovenous bypass with prosthesis, open approach	39.29	Other peripheral vascular shunt or bypass
Complex inframalleolar recanalizations	7	047R3DZ	Dilation of right posterior tibial artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Removal of peripheral vascular prosthetic bypass	7	04PY0JZ	Removal from lower artery of synthetic substitute, open approach	38.00	Unspecified site
Removal of peripheral endovascular prosthesis	7	04PY3DZ	Removal from lower artery of intraluminal device, percutaneous approach	38.08	Lower-limb arteries

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Transposition or surgical bypass of intra-abdominal veins	7	06103JX	Transposition or surgical bypass of intra-abdominal veins with synthetic substitute, open approach	39.26	Other intra-abdominal vascular shunts or bypasses
Endovascular treatment in supra-aortic trunks	7	037J3DZ	Dilation of left common carotid artery with intraluminal device, percutaneous approach	00.40	Procedure on a single vessel
Open infrarenal aortoiliac surgical treatment	7	04100JH	Bypass from abdominal aorta to right femoral artery with synthetic substitute, open approach	39.25	Aortoiliac-femoral bypass
Open surgical treatment of peripheral aneurysm of supra-aortic trunks	7	03QY0ZZ	Open repair of supra-aortic trunk artery	39.31	Suture of artery
Open surgical treatment of unilateral iliac sector	7	04QJ0ZZ	Open repair of unilateral iliac artery	39.31	Suture of artery
Peripheral vascular trauma with reconstruction	7	04QK0ZZ	Repair of right femoral artery, open approach	39.31	Suture of artery
Surgical venous thrombectomy of superior vena cava or branches	7	05C10ZZ	Extirpation of thrombus from superior vena cava or tributaries, open approach	38.07	Incision of thoracic vein
Surgical venous thrombectomy of iliofemoral sector	7	06CY0ZZ	Extirpation of thrombus from iliofemoral vein, open approach	38.07	Incision of abdominal vein
Venous valves. Transplantation	7	06UA07Z	Supplement of venous valve with autologous tissue, open approach	39.56	Repair of vein with graft
Bypass from aorta to visceral arteries	8	04100JD	Bypass from abdominal aorta to visceral artery with prosthesis, open approach	39.26	Other intra-abdominal vascular bypasses
Lymphatic surgery, lymphovenous anastomoses, lymphangioplasties	8	07LN0ZZ	Creation of lymphovenous anastomosis, open approach	40.69	Other procedure on lymphatic vessels
Embolization of hemorrhage	8	04L13DZ	Endovascular occlusion of bleeding arterial vessel with intraluminal device	38.86	Endovascular occlusion of abdominal arteries
Embolization of vascularized tumor or AVM	8	04L13DZ	Endovascular occlusion of artery feeding tumor or arteriovenous malformation with intraluminal device	38.86	Endovascular occlusion of abdominal arteries
Bilateral aortoiliac or aortofemoral endarterectomy	8	04CY0ZZ	Bilateral aortoiliac/aortofemoral endarterectomy, open approach	38.16	Arterial endarterectomy

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Table II (cont.). Proposed nomenclature listing each procedure, its complexity level (1–8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Procedure	Complexity	ICD-10	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Unilateral aortoiliac or aortofemoral endarterectomy	8	04CY0ZZ	Unilateral aortoiliac/aortofemoral endarterectomy, open approach	38.16	Arterial endarterectomy
Limb lymphedema. Lymphovenous anastomoses	8	07LN0ZZ	Creation of lymphovenous anastomosis, open approach	40.69	Other procedure on lymphatic vessels
Endovascular reconstruction of inferior vena cava and branches	8	06WY3DZ	Revision in lower vein of intraluminal device, percutaneous approach	38.09	Lower-limb veins
Limb reimplantation	8	0JQK0ZZ	Reimplantation of limb, open approach	84.21	Reimplantation of extremity
Resection with reconstruction of inferior vena cava and branches	8	06Q00ZZ	Repair of inferior vena cava, open approach	39.32	Suture of vein
Open removal of implanted aortoiliac material	8	04PY0DZ	Removal from lower artery of intraluminal device, open approach	38.08	Lower-limb arteries
Removal of intra-abdominal or thoracic endovascular prosthesis	8	02PA3JZ	Percutaneous removal of aortic/thoracic vascular stent-graft	39.52	Other aneurysm repair
Removal of open intra-abdominal or thoracic vascular prosthesis	8	02PA0JZ	Open removal of intra-abdominal or thoracic vascular prosthesis	39.52	Other aneurysm repair
Endovascular treatment of thoracoabdominal aorta	8	02VW3DZ	Restriction of descending thoracic aorta with intraluminal device, percutaneous approach	39.73	Endovascular implantation of graft in thoracic aorta
Endovascular treatment of aortic arch	8	02VX3DZ	Restriction of ascending thoracic aorta/aortic arch with intraluminal device, percutaneous approach	39.73	Endovascular implantation of graft in thoracic aorta
Open surgical treatment of visceral aneurysms	8	04Q10ZZ	Open repair of visceral artery aneurysm	39.52	Other aneurysm repair
Open surgical treatment of descending aorta	8	02QW0ZZ	Repair of descending thoracic aorta, open approach	38.45	Resection of thoracic vessel with replacement
Open surgical treatment of thoracoabdominal aorta	8	02QX0ZZ	Repair of thoracoabdominal aorta, open approach	38.45	Resection of thoracic vessel with replacement
Open surgical treatment of aortic arch	8	02QX0ZZ	Repair of aortic arch, open approach	38.45	Resection of thoracic vessel with replacement
Abdominal, thoracic, or supra-aortic trunk vascular trauma	8	03QY0ZZ	Open repair of major thoracic/supra-aortic or abdominal artery	39.31	Suture of artery

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Table III. Proposed nomenclature listing each diagnostic test, its complexity level (1 to 8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Examination	Complexity	ICD-10-ES	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Ankle-brachial index	1	4A03XB1	Measurement of peripheral arterial pressure, external approach	89.39	Other nonoperative measurements and examinations of the cardiovascular system
Lower-limb segmental pressures	1	4A03XB1	Measurement of peripheral arterial pressure, external approach	89.39	Other nonoperative measurements and examinations of the cardiovascular system
Arterial plethysmography	1	4A03XJ1	Measurement of peripheral arterial pulse, external approach	89.58	Plethysmography
Claudicometry	2	4A03X51	Measurement of peripheral arterial flow, external approach	89.59	Other nonoperative examinations of the cardiovascular system
Toe-brachial index	2	4A03XB1	Measurement of peripheral arterial pressure, external approach	89.39	Other nonoperative measurements and examinations of the cardiovascular system
Transcutaneous PO ₂	2	4A03XR1	Measurement of peripheral arterial saturation, external approach	89.65	Systemic measurement of arterial saturation
Capillaroscopy	2	4A03X51	Measurement of peripheral arterial flow, external approach	89.39	Other nonoperative measurements and examinations of the cardiovascular system
Venous plethysmography	3	4A04X51	Measurement of peripheral venous flow, external approach	89.58	Plethysmography
Venous Doppler ultrasound of upper limbs, rule out venous thrombosis and thrombophlebitis	4	BH47ZZZ	Ultrasound of upper extremity	88.77	Diagnostic ultrasound of peripheral vessels
Venous Doppler ultrasound of lower limbs	4	BH48ZZZ	Ultrasound of lower extremity	88.77	Diagnostic ultrasound of peripheral vessels
Venous Doppler ultrasound of lower limbs, rule out venous thrombosis and thrombophlebitis	4	BH48ZZZ	Ultrasound of lower extremity	88.77	Diagnostic ultrasound of peripheral vessels
Venous Doppler ultrasound, cervical veins, subclavian and jugular veins	4	BH4CZZZ	Ultrasound of head and neck	88.73	Diagnostic ultrasound of other head and neck sites
Venous Doppler ultrasound, upper limbs	4	BH47ZZZ	Ultrasound of upper extremity	88.77	Diagnostic ultrasound of peripheral vessels

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Table III (cont.). Proposed nomenclature listing each diagnostic test, its complexity level (1 to 8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Examination	Complexity	ICD-10-ES	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Arterial Doppler ultrasound, upper limbs	4	BH47ZZZ	Ultrasound of upper extremity	88.77	Diagnostic ultrasound of peripheral vessels
Lymphochromia	4	4A16X5H	Monitoring of lymphatic flow with indocyanine green, external approach	40.19	Other diagnostic procedures on lymphatic vessels
Doppler ultrasound, vascular access, hemodialysis	4	BH47ZZZ	Ultrasound of upper extremity	88.77	Diagnostic ultrasound of peripheral vessels
Doppler ultrasound of supra-aortic trunks	4	BH4CZZZ	Ultrasound of head and neck	88.71, 88.73, 88.77	Diagnostic ultrasound of head and neck and peripheral vessels
Arterial Doppler ultrasound of lower limbs	4	BH48ZZZ	Ultrasound of lower extremity	88.77	Diagnostic ultrasound of peripheral vessels
Arterial Doppler ultrasound, Pedal Acceleration Time (PAT)	4	BH48ZZZ	Ultrasound of lower extremity	88.77	Diagnostic ultrasound of peripheral vessels
Arterial Doppler ultrasound, abdominal aorta and iliac arteries	5	BW40ZZZ	Ultrasound of abdomen	88.76, 88.77	Diagnostic ultrasound of abdomen and peripheral vessels
Transcranial Doppler ultrasound	5	4A03X5D	Measurement of intracranial arterial flow, external approach	88.71	Diagnostic ultrasound of head and neck
Doppler ultrasound of iliac veins and inferior vena cava	5	BW40ZZZ	Ultrasound of abdomen	88.76	Diagnostic ultrasound of abdomen and retroperitoneum
Doppler ultrasound of superior mesenteric artery	5	BW40ZZZ	Ultrasound of abdomen	88.76	Diagnostic ultrasound of abdomen and retroperitoneum
Doppler ultrasound of inferior mesenteric artery	5	BW40ZZZ	Ultrasound of abdomen	88.76	Diagnostic ultrasound of abdomen and retroperitoneum
Lower-limb venous mapping, preoperative marking of varicose veins	5	BH48ZZZ	Ultrasound of lower extremity	88.77	Diagnostic ultrasound of peripheral vessels
Doppler ultrasound of renal veins	5	BW40ZZZ	Ultrasound of abdomen	88.76	Diagnostic ultrasound of abdomen and retroperitoneum
Doppler ultrasound of aortic stent-graft	5	BW40ZZZ	Ultrasound of abdomen	88.76	Diagnostic ultrasound of abdomen and retroperitoneum
Doppler ultrasound of renal arteries	5	BW40ZZZ	Ultrasound of abdomen	88.76	Diagnostic ultrasound of abdomen and retroperitoneum
Doppler ultrasound of superior vena cava	5	BB4CZZZ	Ultrasound of mediastinum	88.73	Diagnostic ultrasound of other head and neck sites

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Table III (cont.). Proposed nomenclature listing each diagnostic test, its complexity level (1 to 8), and its correspondence with ICD-10-ES and ICD-9-CM codes

Examination	Complexity	ICD-10-ES	ICD-10-ES description	ICD-9-CM	ICD-9-CM description
Ultrasound-guided puncture of pseudoaneurysm	6	3E053GC	Percutaneous introduction of other therapeutic substance into peripheral artery	39.79	Other endovascular repair of vessel
Arterial intravascular ultrasound (IVUS)	6	B44LZZ3	Intravascular ultrasound of femoral artery	88.77	Diagnostic ultrasound of peripheral vessels
Venous intravascular ultrasound (IVUS)	6	B549ZZ3	Intravascular ultrasound of inferior vena cava	88.77	Diagnostic ultrasound of peripheral vessels
Abdominal venous Doppler ultrasound, study of intra-abdominal compression syndromes	6	BW40ZZZ	Ultrasound of abdomen	88.76	Diagnostic ultrasound of abdomen and retroperitoneum
Contrast-enhanced arterial Doppler ultrasound of lower limbs	6	BH48ZZZ	Ultrasound of lower extremity	88.77	Diagnostic ultrasound of peripheral vessels
Preoperative arterial mapping of lower limbs	6	BH48ZZZ	Ultrasound of lower extremity	88.77	Diagnostic ultrasound of peripheral vessels
Contrast-enhanced Doppler ultrasound of aortic stent-graft	6	BW40ZZZ	Ultrasound of abdomen	88.76	Diagnostic ultrasound of abdomen and retroperitoneum

DISCUSSION

The main finding of this study is the existence of a structural mismatch between the current OMC nomenclature and contemporary practice in Angiology and Vascular Surgery. This mismatch is not limited to the number of procedures, but also affects descriptive granularity, the current representation of endovascular procedures, and the ability of the system to discriminate intermediate and high levels of complexity.

The expansion from 59 to 153 procedures should not be interpreted as an artificial enlargement of the catalogue, but rather as an improvement in its descriptive capacity. The specialty has evolved toward a therapeutic model in which open surgery, endovascular procedures, and hybrid treatments coexist, as reflected in most contemporary clinical guidelines in the specialty (1-4). In this context, an excessively aggregated nomenclature no longer faithfully represents real-world activity.

It is particularly relevant that more than one third of the consensus procedures have no strict equivalence in the current nomenclature. Most of these procedures belong precisely to expanding areas: angioplasties segmented by territory, techniques involving stents or endografts, hybrid procedures, selective embolizations, and endovenous therapies. This finding is consistent with the evolution of the specialty and with the progressive shift of part of vascular treatment from classic open surgery toward less invasive interventions that are not necessarily less complex.

Another noteworthy aspect is that the proposal does not eliminate vascular activity previously included by the OMC, but reorganizes it. Some classic procedures remain integrated as independent acts, whereas others are incorporated into categories that are more consistent with current practice or redistributed to avoid duplications.

From a management perspective, an updated nomenclature may improve terminological homogenization, resource planning, comparisons between centers, complexity assessment, and expert and economic evaluation of activity. Previous experiences in other specialties have highlighted the importance of these updating processes to maintain the practical usefulness of the nomenclature in a changing health care and technological environment (6).

CONCLUSIONS

The proposal developed through expert consensus makes it possible to construct a nomenclature for Angiology and Vascular Surgery that is broader, more up to date, and more consistent with real-world clinical practice. Compared with the current OMC block, it incorporates a more faithful representation of contemporary vascular interventionism and a complexity stratification that is better adapted to health care reality.

These results support the need to review the current nomenclature of the specialty and provide a solid methodological and technical basis for its eventual evaluation and approval by the OMC.

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