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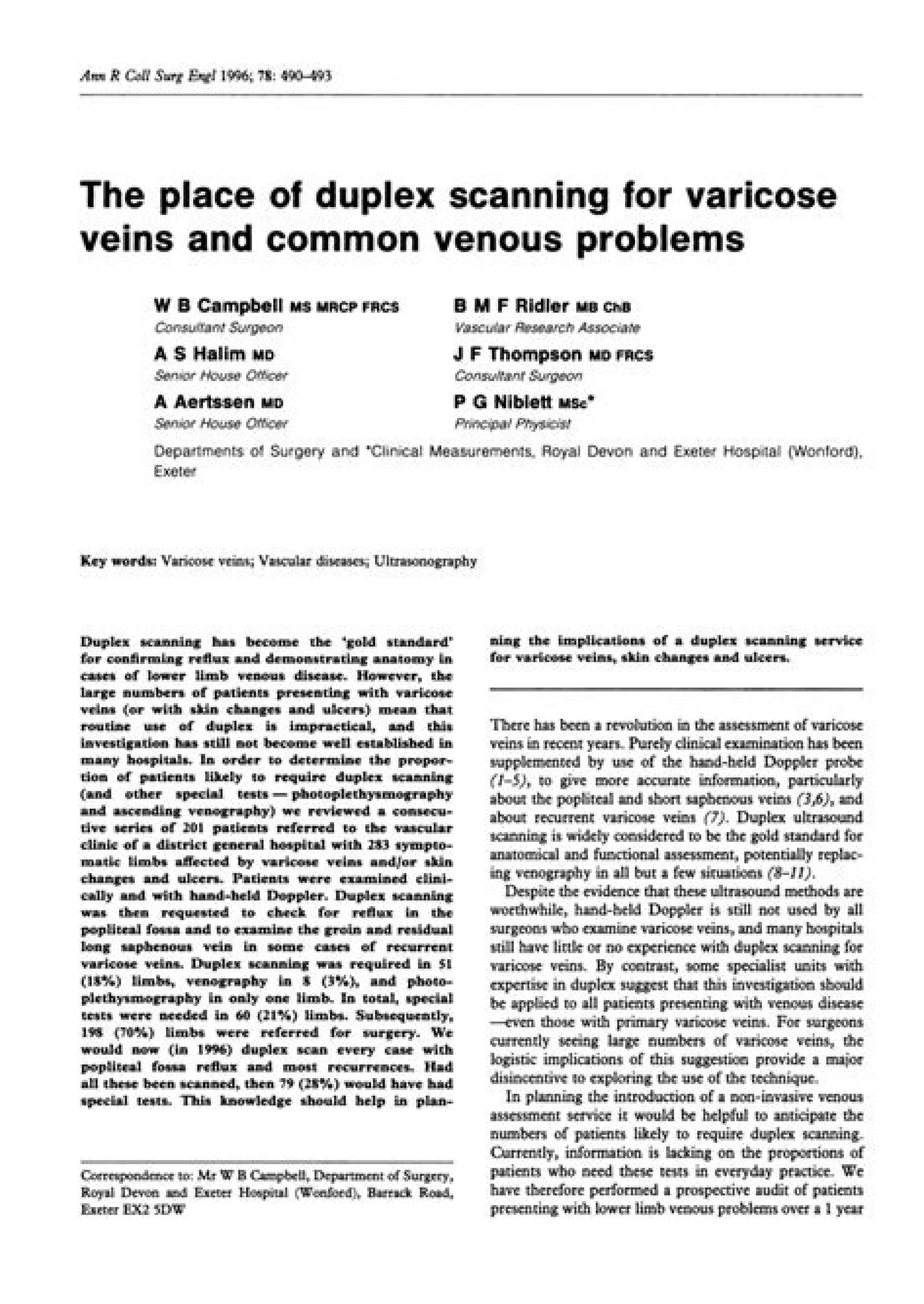

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The place of duplex scanning for varicose veins and common venous problems

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Duplex scanning has become the 'gold standard' for confirming reflux and demonstrating anatomy in cases of lower limb venous disease. However, the large numbers of patients presenting with varicose veins (or with skin changes and ulcers) mean that routine use of duplex is impractical, and this investigation has still not become well established in many hospitals. In order to determine the proportion of patients likely to require duplex scanning (and other special tests — photoplethysmography and ascending venography) we reviewed a consecutive series of 201 patients referred to the vascular clinic of a district general hospital with 283 symptomatic limbs affected by varicose veins and/or skin changes and ulcers. Patients were examined clinically and with hand-held Doppler. Duplex scanning was then requested to check for reflux in the popliteal fossa and to examine the groin and residual long saphenous vein in some cases of recurrent varicose veins. Duplex scanning was required in 51 (18%) limbs, venography in 8 (3%), and photoplethysmography in only one limb. In total, special tests were needed in 60 (21%) limbs. Subsequently, 198 (70%) limbs were referred for surgery. We would now (in 1996) duplex scan every case with popliteal fossa reflux and most recurrences. Had all these been scanned, then 79 (28%) would have had special tests. This knowledge should help in planning the implications of a duplex scanning service for varicose veins, skin changes and ulcers.

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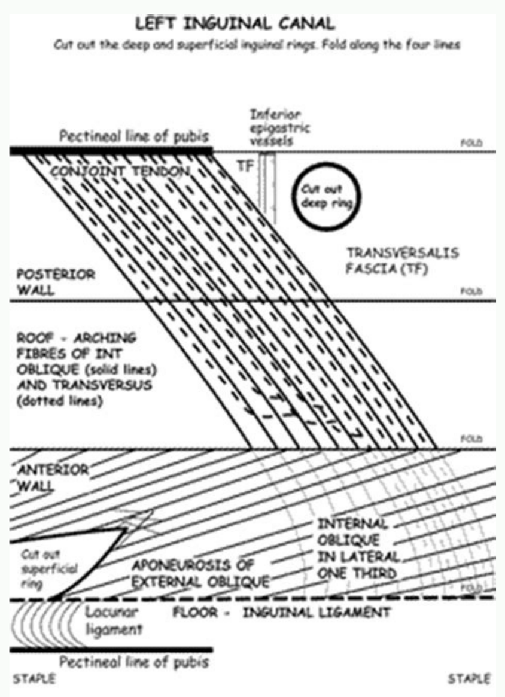
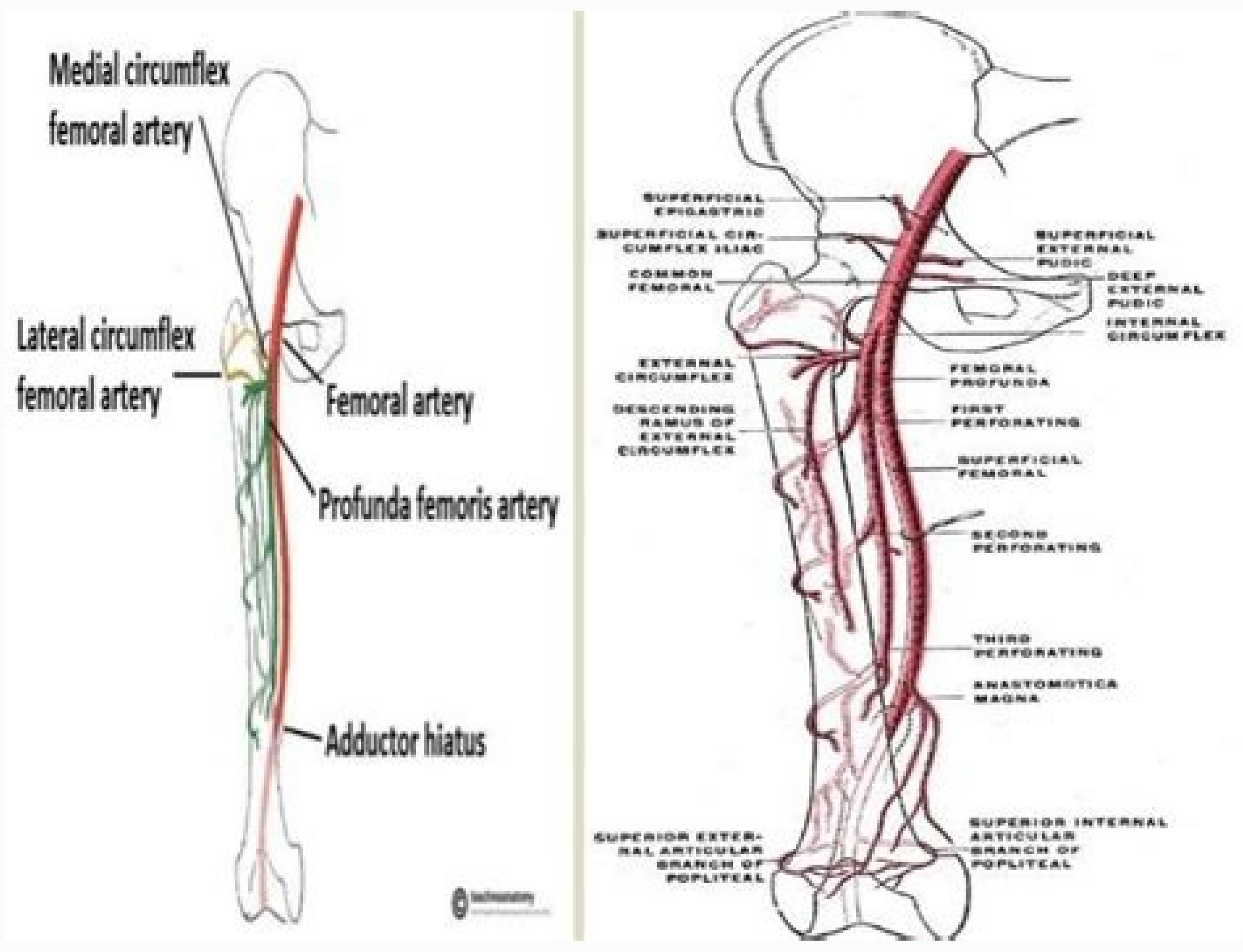
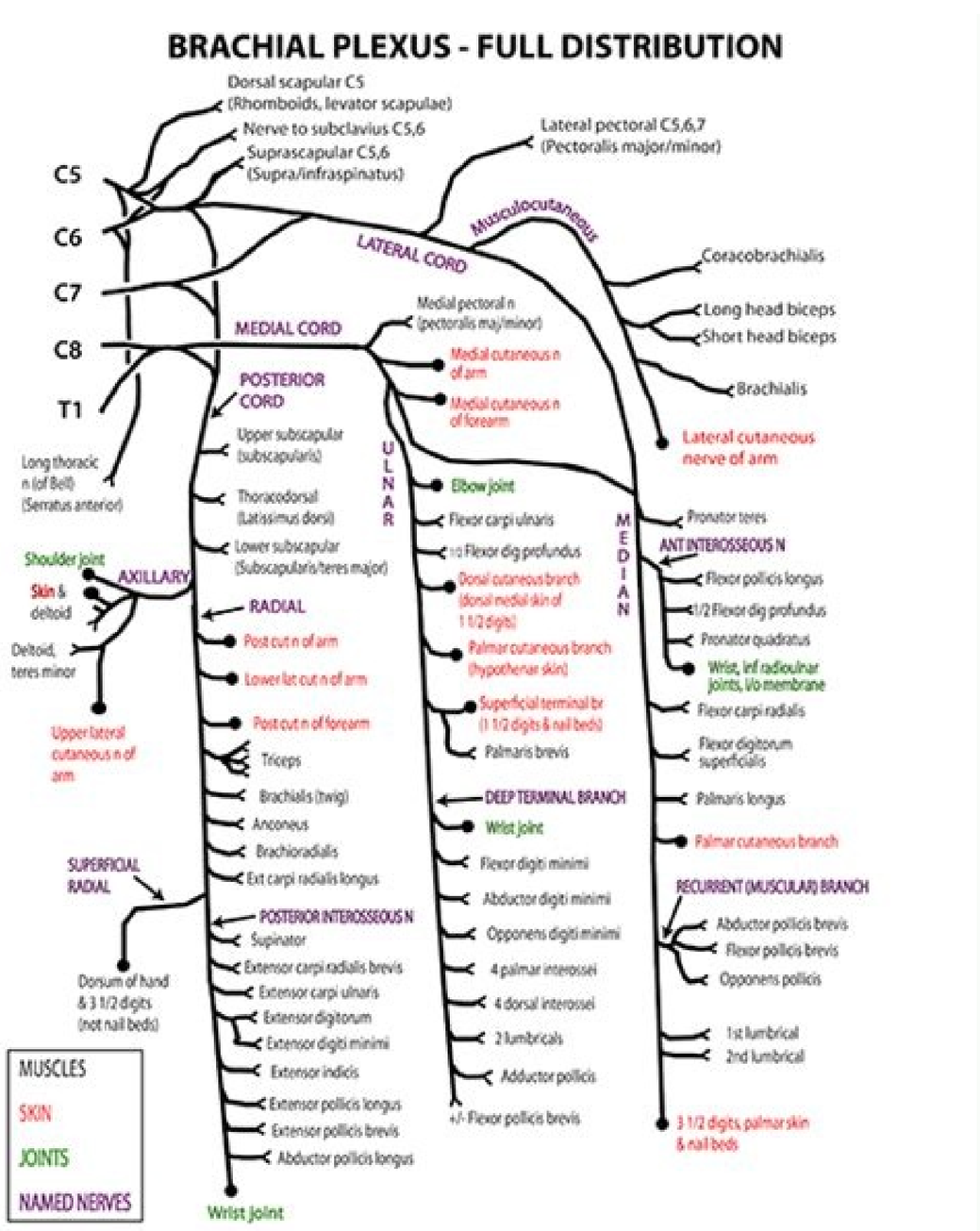
There has been a revolution in the assessment of varicose veins in recent years. Purely clinical examination has been supplemented by use of the hand-held Doppler probe *(1–5)*, to give more accurate information, particularly about the popliteal and short saphenous veins *(3,6)*, and about recurrent varicose veins *(7)*. Duplex ultrasound scanning is widely considered to be the gold standard for anatomical and functional assessment, potentially replacing venography in all but a few situations *(8–11)*.

Despite the evidence that these ultrasound methods are worthwhile, hand-held Doppler is still not used by all surgeons who examine varicose veins, and many hospitals still have little or no experience with duplex scanning for varicose veins. By contrast, some specialist units with expertise in duplex suggest that this investigation should be applied to all patients presenting with venous disease —even those with primary varicose veins. For surgeons currently seeing large numbers of varicose veins, the logistic implications of this suggestion provide a major disincentive to exploring the use of the technique.

In planning the introduction of a non-invasive venous assessment service it would be helpful to anticipate the numbers of patients likely to require duplex scanning. Currently, information is lacking on the proportions of patients who need these tests in everyday practice. We have therefore performed a prospective audit of patients presenting with lower limb venous problems over a 1 year







Anatomy of lower limb veins pdf. What are the deep veins of the lower limb. Ultrasound anatomy of the superficial veins of the lower limb. Why are varicose veins more common in the lower limbs. Anatomy of superficial veins of lower limb. Anatomy of lower limb veins ppt. Radiological anatomy of lower limb veins.

Human saphenous veins perfused for the study of the origin of varicose veins: role of endotamous and hypothesis. On the other hand, the valve damage to the trombastic pose may result from the initial adhesion to the van valle thrombus. 1992; 16: 679 - 686. 1988; 3 (Suppl 1): 1 11. Venous disease: of pathophysiology is quality of life. Cirion Anatomy for Endosic Subfascasial Division of Perforating Veins. Surgery. London: Arnold; 2001. However, an internal duplicate ilãaaca vein may be present in even 27% of the extremities. Although the chronic venous disease usually receives less attention than the arterial disease, it includes a variety of manifestations resulting from a complex interaction of anatomy and hemodinhine insufficiency. AM Heart J. Communication Effective and an understanding of treatment options require a common nomenclature, as updated by an International Consensus Committee.8 Leg veins include the superficial and deep veins, which are the one defined by its relationship with muscle fan; the piercing veins that cross the fan and connect the superficial and deep veins; and the veins of communication that connect the veins within the same venous system. The soleal breasts communicate with the posterior tibial vein in the proximal calf, while the gastroconal network is based to form the paired gastroconal veins that drain to the poplãtea vein.4 The Poplãtea vein is formed by the confluence of the calf vein. 1994; 20: 872 - 877. [PMC Free Article] [PubMed] [Google Scholar] Stewart G J. [Pubmed] [Google Scholar] Gandhi Rh, IIarry and Nackman G B, Halpern V J, Mulcare RJ, Tilson M D. 1995 ; 21: 635 - 645. [PMC Free article] [PubMed] [Google Scholar] Mozes G, Gloviczki P, Menawat S, Fisher Dr, Carmichael S W, Kadar A. [Pubmed] [Google Scholar] Markel A, Manzo R A, Bergelin R O, Strandness D. [PubMed] [Google Scholar] Haardt B. 1). A VAVULA is present in the junction 94% to 100% of individuals is Have at least one vain in the external common femoral segment above the junction. Â ± 1.7) than the normal veins (7.3 â ± ± ¢ âference 2,3), 14 although the relevance of this observation is not clear. The dorsal pedal arc and ascertalaterally ascends by transactions of the lateral evil for a variable ending in the poplãteous vein. The sacular dilations that constitute the varicose veins are consistently located only for the distal side (upstream) of the Valve. Evidence to support the descending development of varicose veins of van valve or a printage valve abnormality as the etiology of varicose veins. 1986; 83: 3460 - 3464. EUR J VASC ENDOVASC Surg. Characterization of endotheline receptors in human varicose veins. However, as only 10% of the normal internal ilãacas tanm vães, the role of venous incompetence is not clear. the lower vein. The relate of venous ulceration with venous outpatients. [PubMed] [Google Scholar] Jones GT, Solomon C, Mouveno A, Rij a M van, Thomson I A, Galvin I. The most numerous vans in the distal leg and diminish towards the hip. Phlebology. Anterior designations attributed to the Safena, including the Colles or Scarpa Farscia and the superficial layer of Farscia Deep, must be abandoned. [PubMed] [Google Scholar] read h â € ught â € ‹J, VOGT M, Pfurrunder H. The Saphenous Vein and the Artting and the Associated Nerves are within the Saphene Compartment, The reticulum veins, accessory veins and the tax veins external to the compartment.8,9,10 Duplication true of the great vein, identified by the division of the vein in two channels, both lying on Muscle fan who later joins, is present in the thigh at 8% 10 and calf in 25% of cases. The physiology and hemodiminheman of the chrostic venous insufficiency of the lower limb. Blash varicose veins are associated with several changes in the vein wall architecture that can precede the development of reflux, giving rise to weak hippheses of the wall. A complete understanding of the mechanisms of hemodinhine insufficient and the underlying anatomy is essential to direct the treatment of patients with chronicle venous disease. In the vertical position, the persistent backward flow> 0.5 seconds is generally defined as a pathological reflux. The veins of the lower end are classified according to their relationship with muscle fan and are located in the surface or deep compartment. Distribution of valvular incompetence in patients with venous ulceration of stasis. [PubMed] [Google Scholar] Vanhatte PM, Corcaud S, by Montrion C. A muscle venous pump system and bichan -spide vans ensure the flow of superficial to deep and flow to cephalic within the lower end. [PubMed] [Google Scholar] Negus D. Morphology vein. The muscular bombs of the human lower limb. The Intimal Monolayer Rests on the basement membrane and is actively antithrombenic, Producing prostaglandin i2, glycosaminoglycan cofactors of antithombin, thrombomodulin, and tissue-type plasminogen active (T-PA). , anticoagulant suppression and exposure of neutral receptors.2,3 The medial layer consists of three smooth muscle layers interspersed with and elastin, which are innervated.4 compared to the artists, the veins are a weaker muscle layer and a less eloquent fabric.5 The adventure is the thicker layer From the vein wall, containing more veins of coloner and more pointed veins than the artists. 1972; 1: 258 - 261. 2). 1998; 28: 826 - 833. reproduced with permission.) The large vein saphenous is usually directly in the muscle in the saphenous compartment, a surface compartment that is superficially border by the fascia hypereciaci and deeply by the fan muscle.10 This compartment is quickly visualized the ultrasound thigh and was described as having the appearance of an "egic eye" (Fig. The venous system of the lower limbs includes the superficial, deep and piercing veins. 2000; 102: E126 - E163. Direct communication between incompetent reticular veins and the deep venous system through perforating veins were reported in 60% of patients with extensive thigh telangiectasis. Dio da Panturrilha to pass through the knee (Fig. The great vein Safena Ma y penetrates the saphenous saphenously in the way of thigh or distal and becomes more superficial.9 The lack of support from Farscia in those It was suggested as the cause of varicose veins, 10 that most often occur above the noisy of the superficial fan. 9 branches and tributaries of the large vein may be important in the pathophysiology of the chronicle venous disease. In: Gloviczki P, Yao JST, Editor. Med Just. J Pathol. 1989; 15: 138 - 145. Edinburgh: Churchill Livingstone; 1976. 1996; 131: 403 - 406. Where does venous reflux begin? 2002; 53: 131 - 140. 1st ed. In: Dodd H, Cockett FB, Editor. of venous distances: American venous fan ribs. [Google Scholar] Lowell R C, Gloviczki P, Miller / M. Indirect perforators, on the other hand, tend to be distributed randomly.11 Paratibial perforators may be of particular importance, as many are not accessible with The endoscrepic ligament of the subfascial perforator, unless it fans it between the deep superficial and posterior compartments. Âria15 cm proximal to the knee with the distal superficial femoral vein or the proximal popplateous vein. 11 - 24.Cotton L. T. [Pubmed] [Google Scholar] Bemmelen P S Van, Bedford G, Beach K, Strandness D E. [Pubmed] [Google Scholar] Alexander C J. 1995; 21: 307 - 313. J Dermatol Surg Oncol. Arch Surg. Outpatient venous pressure measurements: new parts derived from a mathematical hemodinhine model. [PubMed] [Google Scholar] Ludbrook J. Venous system development and anatomy. An objective evaluation of the physiological changes in Pã³s -Tromban Syndrome. Reticular veins, a network of parallel veins is the surface of the skin and situated between the fan and the saphenous dermis, drain the skin from the lower end and the subcuting tissue.9 These veins communicate with the tributaries or the veins or the veins deep through perforators. Patterns of reporting in venous disease: an update. The vein enters the thigh medially ascends to pierce the deep fan and join the 3 to 4 cm (two fingers) inferior and lateral femoral vein to the pubic tubing.5 The safen nerve is anterior to the large vein CALF4 saphenous and can be injured by extended procedures for the calf. 3 - 20.NAWROTH P P, Handley D A, Esmon C T, Stern D. M. Ann Surg. The closure of the vain is a passive event initiated by the reversion of the transvalvular pressure gradient. 1973; 110: 153 - 165. London: Chapman and Hall Medical; 1996. 1991; 13: 805 - 811. Dermatol Surg. [PubMed] [Google Scholar] Araki C T, Back TL, Padberg FT, et al. 1979; 74: 435 - 444. Epidemiology and pathophysiology of venous thromboembolism. [PubMed] [Google Scholar] Gooley N A, Sumner D S. Other pathways include the posterior thigh science drainage system for the internal ilãam system, the lateral subdone system that drainage to the veins femoral and inferior, drainage Through the obtractor veins and alternative venous paths along the round ligament.9The deep veins of the lower end follow the course of associated artting and, except for the femoral vein, named according to . Br J surg. Blood anchorage flow within these veins is guaranteed by a system of muscle venous pumps and bichan -SPANCIAL VANGLES. Hemostasis. Pathology and vein surgery of the lower limb. Determinants of venous disease chronicle aposty acute deep vein thrombosis. At the lower extremities, the vans work to divide the blood hydrostic column into segments and ensure the flow of superficial to deep and from cephalic flow. 1961; 48: 589 - 597. 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The epanies associated with paratibial perforators (Sherman and Boyd) and later tibial (cockett perforators) should not be used.8 most occur along a 3 cm wide range that rising the medial calf in around what was called "Linton's Line. by leg, with 52% being direct perforators.11 Lower perforators tend to be posterior tibial perforators, and the upper paratibial perforators.11 lower perforators tend to be short, usually only 1 cm long, while in the middle of the leg they can be 3 to 4 cm long.10 Direct drills are located in five groups 7 - 9 cm, 10 - 12 cm, 18 - 22 cm, 23 - 27 cm and 28 - 32 cm proximal to the medial evil. Relationship between changes in the deep venous system and the development of poses poses and an acute episode of profound venous thrombosis of the lower limbs: a follow-up of one to six years. 1974; 61: 641 - 649. The deep femoral vein connects directly to a poplãtea vein in 38% of members and communicates through a tax in 48% of members.5 To avoid confusion with the superficial venous system, the phrase is Â Ády â Â œ å “abandoned in the current nomenclature. [PubMed] [Google Scholar] Bemmelen P S Van, Bedford G, Beach K, Strandness D E., Jr Vães Status in the superficial and deep venous system in the chronic venous disease. The Cirion Anatomy of the superficial and perforating veins of the lower limb. 1966; 71: 635 - 641. The venous system of the lower end: anatomy and physiology of normal venous function and chronicle venous insufficiency. Valvular Reflux Reflections Deep Venosa Thrombosis: Incidence and Time of Occurrence. The inner ilãam vein drains both the parietal (upper and lower, sacral, scaral, lumbar, shutter and internal pudendal) and visceral (hemorrhan, vesicoprostic, uterine, gonadal, and praginals) that are valid, valid, valid, valid valid and vestavaginals. The collateral pathways can become important in cases of iliocaval obstruction. pp. The right right ilãam vein rises along a relatively straightforward route to the lower vena cava, and the left ordinary ilãaa vein runs transversely Acute. [PubMed] [Google Scholar] Meissner MH, Caps MT, Zierler B K, et al. The spectrum of manifestations is higher, ranging from asymptomal tenngiectasia through unexpected symptoms to edema, skin changes and open ulceration. The place of residual abnormalities in the veins of the legs in long-term follow-up after deep vein thrombosis and its relationship with the development of pãi-trombastic syndrome. [PubMed] [Google Scholar] Nicolaides A N, Hussein M K, Szendro G, Christopoulos D, Vasdekis S, Clarke H. Interleucine 1 induces endothelial CT proceagulant while suppressing the anticoagulant activity of the cellular surface. [PubMed] [Google Scholar] Back TL, Padberg FT, Jr, Araki Ct, Thompson P N, Hobson R. W. 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In the thigh, the anterior and posterior accessory veins ascend parallel the large saphenous vein, external to Farscia.8 Venous Drainage of the Lower Abdominal Wall (Superficial External Pudendal, Surface Superficial Circumflex and Superficial Epigastric Veins) Usually joins the large vein near the saponofemoral sap. . Anatomy of the superficial venous system. Structure and composition of varicose veins with refinement to the colonry, elastin and smooth containment of the method. , Sometimes it is called the posterior arc complex.10 One or more intersaphen veins also cross the calf obliquely among the large and small saphenous veins. Cell cycle with programmed cell death inhibition, 34 changes in enzepalic activity, 44 and underlying defects in such a â € hydons.31.45 Post-Changing Bords Âs a combination of reflux and obstruction of what only abnormality. Venous obstruction is also important determinants of serious poon-bordered manifestations. The limited amplitude of motion is a significant factor in venous ulceration. Connective tissue matrix dwarf and proteolytic activity of the file varicose veins. Am J surg. A complete understanding of highly variable venous anatomy is essential to understand underlying pathophysiology as well as in the direction of treatment. with arterial occlusive disease. Veins disease: Diagnosis and treatment. [PubMed] [Google Scholar] Bouisou h, Julian M, Pieraggi MT, Louge L. to the contradiction of the arterial system, however, the manifestations of venous disease can result in not only of obstruct £ o, but also the directional incompetence of the conduit. The weather base of the form of varicose veins. The high capacitance of the venous system is fundamental for the "muscle pump" calf (described later) and is largely due to transverse section of the lower end veins, which allows volume to increase without a circumstance or pressure increase.4The superficial, deep and more perforating veins (as defined later) containing bican vans formed from endotted folds supported by a thin layer of connective tissue. 1997; 26: 736 - 742. Detailed anatomial dissections showed that the vans are present in only 1.2% of the common illiterate veins, 27% of the ilãaous outer veins (39.6% right versus 14, 6% â left) and 10.1% of the internal ilãacas veins.15 exist in five deed venous vans between the inguinal ligament and the popplãtea fossa, although the number varies from two to nine.17 its arrangement © © Various, but the ilãacal femoral vein external above the junction of saphenofenophemoral usually has a vain; The femoral vein above the adductor channel has transactions or more vans; The femoral veins and distal popplins are one or two vans; and the tibial/peroneal veins were in the very many vans spaced at intervals of "2 cm.13,17 although muscle sinuses are valid, they often emphasize in veins treely vain and draining the gastrocnãmio and healthy veins.5 , 17 relatively constant stations include a vain in the femoral vein only its confluence with the deep femoral vein and the distal popplateous vein only to the adductor channel.5 The competence of popplateous vans is particularly important. The bomb of the Calf Calf Anatian sons in cadamors reported a 64th -veins from the ankle and groin.10 they can empty in deep axial veins (direct perforators) or venous breasts of the calf (indirect perforators), healthy Invariably accompanied by an artist and is commonly located in the intramuscular septa. J -Med. A comparison of the pattern of histochical enzyme in the normal and varicose veins. Int angol. [Google Scholar] Barber D A, Wang X, Gloviczki P, Miller V. M. Plasminogan activator location in relation to morphological changes in the human veins used as deviation self -thinnings of the artion Ria. Venous wall function in the pathogen of the varicose veins. 1). Piercers of the sinic pity, as they usually direct the flow flowing the superficial veins, while all others usually direct the flow to the deep system.13,18 The main perforators of the medial calf and Thigh TãªM One to Train Vães that direct the superficial flow to the deep veins.13 The calf contains four groups of perforator - the paratibial perfoters that connect the large vai veins saphenous and posterior, the posterior tibial perforators that connect the access Large saphenous (posterior arc) and posterior tibial veins, and the end and anterior background performers of the leg. The venous system of the lower extremities includes the deep veins, which is under muscle fan and drain the lower end; the superficial veins, which are above the deep fan and drain microcirculation; and the piercing veins that penetrate muscle fan and connect the superficial and deep veins. Anathanic classification of the doeseus â € hythnic venous nº adapted from the International Committee on Consensus on Chronicle Venous Disease. Expression of molecular mediators of apoptosis and their role in the pathogan of the varicose veins of expression. 1993; 23 (Suppl 1): 127 - 140. O Arch vein drains a network of ankle medial veins11 and is important, as posterior tibial perforators join this vein instead of the main trunk of the large saphenous vein. [PubMed] [Google Scholar] LaborPoulos N, Giannoukas A D, Delis K, et al. 1995; 21: 35 - 45. [PUBMED] [Google Scholar] Nicolaides A N. The manifestations of the chronic venous disease result from a complex interactions of anatomy and hemodinhine insufficiency. Among the patients with established chronic venous insufficient, the thrombus is seen by merging the leaflet within 50% of the cases, and the endothelial erosion with thickening of the porin membrane is present in the rest .53 However, valve destruction does not seem to be a universal consequence of acute TVE. The anterior tibial, posterior and peroneal tibial veins are the Combining Venas of the corresponding arts, the paired veins communicating in a plexiform arrangement around the artist.5 The muscle venous sinuses are the main collecting system of the bomb of the Mother Calf. [Pubmed] [Google Scholar] Johnson BF, Manzo RA, Bergelin R O, Strandness D E., as described by Van Bemmelen et al. It is supine. The venous van closure mechanism. In addition, despite a large number of invasive tests, there is not a universally universally invasive measure universally accepted from hemodinã £ o Venous-man-to-the-bloodthouses. The updates in the nomenclature of the lower end veins, used in the following discussion, clarified many definitions and eliminated many epanies.8The superficial venous system includes the reticular veins as well as the (larger) and small veins (larger) veins and small veins (smaller) and their veins are hay and their largest (larger) and small (smaller) tributaries. Edinburgh: Mosby; 2004: 571 - 589. to the vein of the veins the iläacas veins rarely contain vães. Varicosities of the vulva, vagina and posteromedial thigh, as well as symptoms of the Congestion sample is also commonly attributed to the vanous insufficiency and incompetent influential of the internal ilãam vein. Bemmelen p s van, beach k, bedford g, Strandness D E. The reticular veins are dilated, but the veins of the blue not paragraphs. and are distinguished from red tenngiectasia to smaller purples. 1979; 61: 198 - 205. 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Approximately two terminations of patients with the tanns of the multisystem disease (ie, disease involving more than one anatistic vein system) .49 reflux in popplãteous and posterior tibial veins, particularly when combined with superficial venous reflux, It is more significantly associated with the purebonic poses skin changes.50.51 In the same way, persistent popplate obstruction also seems to be an important factor that determines the severity of chronic venous manifestations .52The mechanism by which valvular insufficiency develops after venous recanalization remains an important question. While reflux in asymptomatic and slightly symptomic patients is generally isolated and segmental, 26 that in patients with skin changes and ulceration usually is multissegy and freq The deep, superficial and perforary veins. 1991; 14: 678 - 683. The mechanisms of in deep vein thrombosis. The system dysfunction may result from incompetence or valvular reflux, chronic venous obstruction or dysfunction of muscle bombs. The content of smooth seaside section, as well as the total protein content, is reduced in patients with varicose veins, and effective contraction can be even more compromised by the fragmentation of the muscle layers.31,40 AS Smooth Mother Cups also transformed from a constraint to a phenomenal secretary, 41 and there are changes corresponding in the extracellular matrix of the venous segments involved and not involved. The side superficial veins are remnant of the marginal vein embryonary Lateralis and can be a prominent feature of Klippel-Ternaunay sagrome. Vage pocket thrombus organizations and double thrombus anomalies and vague scope involvement. 1987; 2: 135 - 158. [Pubmed] [Google Scholar] Caggiati A, Bergan JJ, Gloviczki P, Jantet G, Wendell -Smith C P, Partsch H. 1993; 18: 796-807. 1992; 164: 260 - 264. Ann R Coll Surg Engl. The communication of veins connects the veins within the same system (that is, deep to deep, superficial to superficial). 1989; 10: 425 - 431. As in the arterial system, the maintenance of the appropriate flow depends on the interaction of an effective pumping mechanism and functional conduct. Among the three pumps, the calf pump has the highest capacitance, generates the highest pressure and is of greater importance.18,21 The framing of the bomb of the Mother of the Typ calf is 65%, compared with only 15% for thigh pumping. 1992; 111: 402 - 408. J Cardiovasc Surg (Torino) 1986; 27: 534 - 543. Only 33% to 59% of segments initially thrombosado â € ught show reflux evidencies in duplex ultrasound 1 year after the acute event.54 These clinical observations are supported by histological evidencies of that the organization of thrombus rarely involves the scaps of the van. Neutrals and deep venous. 1993; 17: 414 - 419. However, significant significant variability The clutic anatomy may be present in only 16% of the limbs.5 The deep venous system of the calf includes the tibial and peroneal veins, as well as the soleal veins and gastronomic veins. In a more simplified way, the anatistic places of venous disease are classified as superficial, deep (AD) or perforators (AP). Generally, there are two main tributaries in the calf, an anterior branch and the posterior arc vein (Leonardo), which starts at the evil of the medial evil and joins the large distal saphenous vein to the knee. 49 57.PORTER J, Monet G. [Pubmed] [Google Scholar] Mathews R, Smith P A, Fishman and K, Marshall F. These observations are supported by ultrasound studies showing the elementary incompetence as a disease § Multicance that develops simultaneously in the disgusting venous segments.35 It seems that the varying changes precede the development of open valvular incompetence14,36,37 and that the valvular dysfunction is a secondary phenomenon . [PubMed] [Google Scholar] Ascher E, Jacob T, Hingorani A, Tsemekhin B, Gunduz Y. It is assumed that the reflux occurs when the weakened wall dilates, causing the commissure between the van scopes and the separation £ o of the leaflets of the vãvaula. 43 The etiology of functional, biochamic and structural changes associated with varicose veins remains uncertain. The system dysfunction may result from the degeneration of the vein wall, valvular damage, picked pus, chronically venous obstruction or muscle bombs dysfunction. Pathophysiology of varicose veins and chronic venous insufficiency. In vitro evaluation of the function of the endothelial and smooth task of the privacy. Relationship of venous reflux with the venue incompetence site: implications for venous reconstructive surgery. For another Form, the anathamic distribution of reflux and obstruction is classified into 18 venous segments, as illustrated in the table ¢ â Ády. clinical. Thus, the closure of the vãvula requires first the termination of the antergrade flow, followed by a brief interval of retrofit flow (

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