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The Arterial Supply to the Palm of the Hand (arteriae palmae manus)

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Summary. The arteries supplying the hand are arranged at three levels: the superficial palmar plane, the deep palmar loop and the dorsal network. Despite a terminology suggesting symmetry (superficial arcade and deep arcade; palmar metacarpal arteries and dorsal metacarpal arteries; palmar digital arteries and dorsal digital arteries), the appearances at each level are in fact quite distinct. We have made a study of the arteries of the palm of the hand based on 100 radioanatomical preparations and have classified them into ten types taking into account their calibre, course, origin and the territory they supply.

Les artères de la paume de la main (arteriae palmae manus)

Résumé. L'organisation artérielle de la main comporte trois niveaux: le plan palmaire superficiel, l'anse palmaire profonde et le réseau dorsal. En dépit d'une nomenclature évocatrice de symétrie (arcade superficielle et arcade profonde, artères métacarpiennes palmaires et artères métacarpiennes dorsales, artères digitales palmaires propres et artères digitales dorsales), chacun de ces niveaux a un aspect qui lui est propre. Etudiées à partir de 100 préparations anatomo-radiologiques en tenant compte des trajets et des calibres artériels, les artères de la paume sont finalement classées en 10 types en fonction de leurs origines et de leur territoire.

Key words: Palm of the hand – Fingers – Arteries

Introduction

Gayet (1939) declared that 'there are as many variations in the arterial supply to the hand as there are individuals'. The vast number of anastomoses led Sarroste (1959) to describe the hand as a sponge of blood. But among these anastomoses, direct, recurrent and perforating, many are nothing but slender branches. Neither can they be regarded as arcades: true arterial anastomoses between two vessels of the same calibre one arising from the radial and the other from the ulnar side are seen in only a minority of cases.

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Material and Methods

Our study was based on 100 anatomical and radiological preparations in subjects aged between 32 and 90 years. The specimens were injected at the level of the brachial artery (a. brachialis) with oil of turpentine and red lead. Each specimen was X-rayed on a 24×30 film without screen, at a focal distance of 1 m. The principal palmar creases (longitudinal, lateral, proximal transverse and distal transverse) were indicated by means of lead wire. After fixation, each specimen was dissected plane by plane, diagrams were made, photographs taken and the calibres of the vessels carefully noted. The results of the dissection were compared with the X-rays and a comparative study of the results allowed us to draw up a classification of the different types of blood supply.

The Arterial Sources (Fig. 1)

The major channels of supply to the hand, the ulnar and radial arteries, are occasionally associated with two supplementary supplies by the 'interosseous system' (Kenesi and Honnart 1968). The median artery (a. mediana) may reinforce or supply exclusively the superficial palmar plane, and the anterior interosseous artery may reinforce the deep palmar plane (7%: Valdecasas Huelin et al. 1979). The term median artery should be reserved for a vessel which joins up with the palmar arterial plane. When such an artery supplies only the median nerve or neighbouring muscles, it should be designated the artery of the median nerve. Differences in terminology probably explain the wide differences in percentage frequency reported by the different authors (2.5% for Breme 1899; 16.5% for Tandler 1896).

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Table 1
External calibres of the ulnar (*U*) and radial (*R*) arteries and of the superficial palmar (*PS*), distal deep palmar (*PPD*) and proximal (*PPP*) branches of the classical double palmar arterial arrangement. (Note that in every case the external diameter of the branches, measured here at their origin, diminishes rapidly thereafter with the exception of that of the distal deep palmer branch)

		∅ U	∅ PPP	∅ PPD	∅ R	∅ PS
Left	♂	**2.56**	**1.31**	**1.33**	**2.91**	**1.45**
	♀	*2.11*	*1.10*	*1.37*	*2.84*	*1.34*
	T	2.42	1.25	1.34	2.88	1.42
Right	♂	**2.54**	**1.40**	**1.36**	**3.16**	**1.60**
	♀	*2.26*	*1.22*	*1.17*	*2.64*	*1.40*
	T	2.45	1.34	1.30	2.99	1.52
Left	♂	**2.57**	**1.36**	**1.35**	**3.04**	**1.65**
+	♀	*2.18*	*1.16*	*1.25*	*2.74*	*1.37*
right	T	2.44	1.29	1.31	2.94	1.47
Amplitude	m	*1.4*	*0.5*	*0.5*	*1.7*	*0.9*
	M	4.2	2.5	2.0	4.5	2.7

Table 2
Frequency of the various digital artery arrangements. The abbreviations relate to the sources of origin: *U* = palmar artery, *R* = radial artery, *r* = superficial palmar branch, *M* = median artery, *P″* = distal perforating branch

Digital arteries	Origin of the 7 Medial Digital Arteries			
	Medial of the 5th	Common 4th inter-space	Common 3rd inter-space	Common 2nd inter-space
Exclusively superficial U-r	86%	86%	77%	18%
Predominently superficial U-UR-r-rR-MR	89%	92%	97%	50%
Exclusively deep (or dorsal) R-(P″)	6%	4%	2%	6%
Predominently deep (or dorsal) R-RU-Rr-RM-(P″)	11%	8%	3%	50%
Frequency of double supply UR-RU-rR-Rr-MR-RM	8%	10%	21%	76%

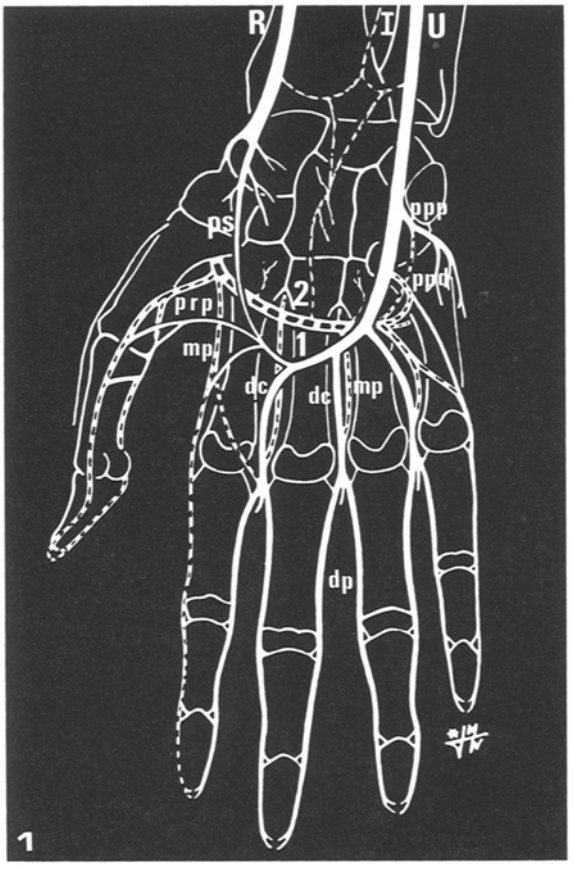

Fig. 1
General diagram of the arteries of the palm of the hand (after Farabeuf) with predominence of the ulnar supply (*U* a. ulnaris) in the superficial palmar plane (*1*) and the radial supply (*R* a. radialis) in the deep palmar plane (*2*)
I a. interossea, *ps* ramus palmaris superficialis, *mp* aa. metacarpeae palmares, *ppp* ramus palmaris profundus proximalis, *ppd* ramus palmaris produndus distalis, *dc* aa. digitales palmares communes, *dp* aa. digitales palmares propriae, *prp* a. princeps pollicis

Schéma génèral des artères de la paume de la main (inspiré de Farabeuf) avec prédominance de l'apport ulnaire (*U* a. ulnaris) au plan palmaire superficiel (*1*) et de l'apport radial (*R* a. radialis) au plan palmaire profond (*2*)

We came across this artery on sixteen occasions with a greater or lesser contribution to the superficial palmar plane in three quarters of them. The external calibre of this artery measured at the distal border of the flexor retinaculum was between 0.8 and 2.5 mm, mean 1.3 mm. Its distribution was variable (Figs. 2 and 5b). Its territory was limited to the first 2 intermetacarpal spaces but was never the exclusive supply.

Arterial Organisation of the Superficial Plane (Fig. 3)

The superficial arterial arrangement was very variable (Figs. 4 and 5). Dujarier (1904) maintained that the presence of an arcade was abnormal. In much the same way Saulieu and Railliere (1910) spoke of the classical notion – direct anastomoses – and of a modern notion – either no anastomosis or a sudden

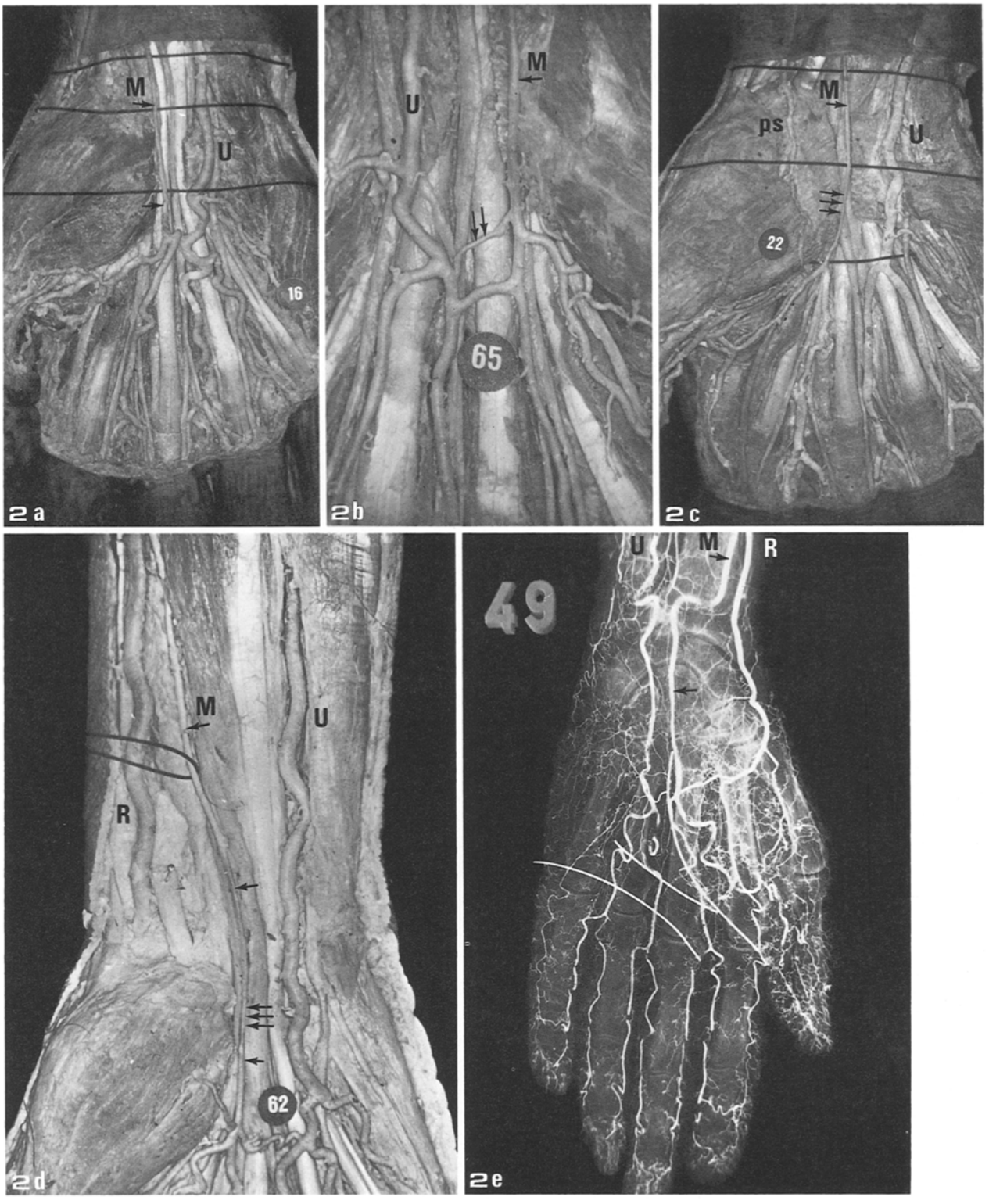

Fig. 2a–e
Group III with the presence of a median artery (*M*) of variable size. It either simply joins up with the superficial palmar plane (**a** 4% of cases) or competes for the formation of the digital arteries (**b** and **e** 12% of cases). The median artery sometimes gives the impression of being compressed (↗ ↗ ↗ **c** and **d**) during its course through the carpal tunnel (canalis carpi). **b** Double ulnar median anastomoses (↗ ↗). *U* a. ulnaris, *R* a. radialis, *ps* ramus palmaris superficialis

Groupe III avec présence d'une artère médiane (*M*) d'importance variable. Elle rejoint le plan palmaire superficiel simplement (**a** 4% des cas) ou concourt à la formation d'artères digitales (**b** et **e** 12% des cas). L'artère médiane paraît parfois comprimée (↑↑↑ **c** et **d**) dans la traversée du canal carpien (canalis carpi). **b** Anastomose double médiano-ulnaire (↑↑). *U* a. ulnaris, *R* a. radialis, *ps* ramus palmaris superficialis

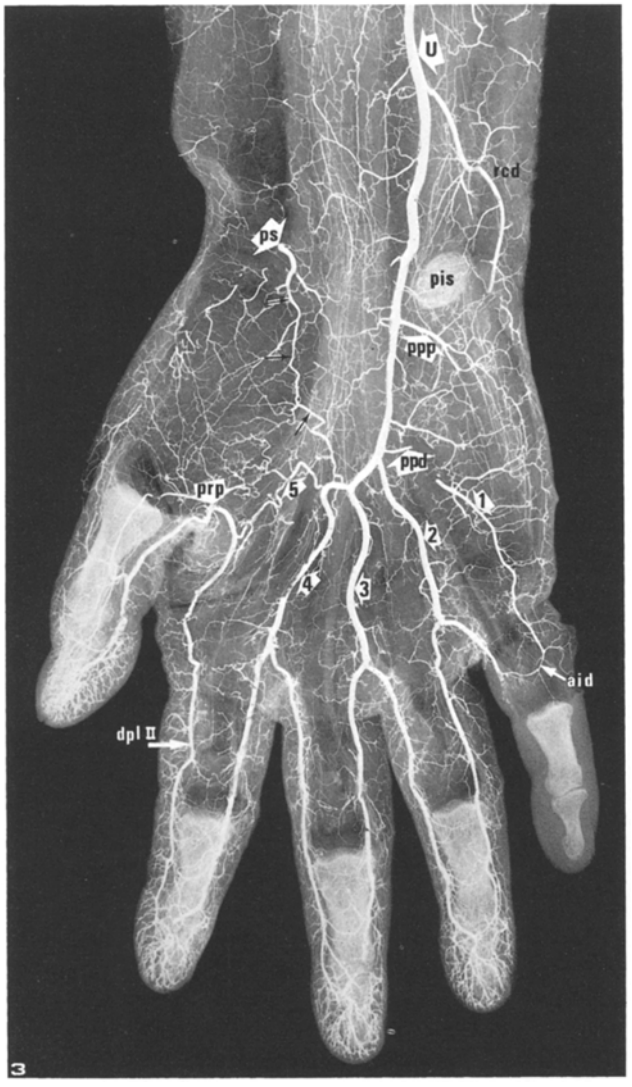

Fig. 3
Anatomical preparation to show the superficial palmar arterial plane (arcus palmaris superficialis)
U a. ulnaris, *rcd* ramus carpeus dorsalis or lateralis, *ppp* ramus palmaris profundus proximalis, *ppd* ramus palmaris profundus distalis, *2, 3, 4* aa. digitales palmares communes; a. radialis, *ps* ramus palmaris superficialis, *prp* a. princeps pollicis, *dpl II* a. digitalis lateralis (digitus II, index), *1* a. digitalis medialis (digitus minimus V); *aid* arcus interdigitalis, *pis* os pisiforme

Préparation du plan artériel palmaire superficiel (arcus palmaris superficialis)

change in calibre. The recent study by Kaminski and Barnes (1976), using the Doppler technique, confirmed that the superficial arterial arch is incomplete in 73% of cases and we have been unable to find any published report since the beginning of the century which would justify the use of the term superficial palmar arcade. Classically this plane is supplied from two sources: the large medial or ulnar artery (a. ulnaris), and the lateral or slender superficial palmar branch (ramus palmaris superficialis).

The termination of the ulnar artery should be considered in terms of the most lateral common digital artery whose calibre is greater than that of the metacarpal artery associated with the formation of the true digital arteries. The presence of regressive anastomotic branches (for example an atrophic common digital artery to the second intermetacarpal space) or branches destined to supply the first interspace (common digital artery of the first intermetacarpal space) or the thenar eminence (recurrent branches) is insufficient to provide the basis for a valid description.

The superficial palmar branch, arising from the lateral border of the radial artery most commonly at the side of the styloid process, is deeply situated in the belly of the short flexor of the thumb in 51% of cases, in a middle position crossing the short abductor of the thumb in 35% of cases and rarely superficial, despite its name, in 14% of cases. It is thus particularly vulnerable beneath the thenar aponeurosis and its pulsations may be felt. The superficial palmar branch, when constant, does not take part in the formation of the digital arteries and does not join up even with the ulnar artery in 2/3 of cases. As such it sends no branches to the thenar eminence and remains simply a thenar branch.

The classical arrangement whereby a vascular loop is formed by anastomoses of the two vessels is rarely seen, and occasionally even the microscopic appearances may be deceptive: dissection of the lumen shows that communication between the two is practically absent.

Formation of the Deep Palmar Loop

In contact with the base of the four medial metacarpals and the interosseous muscles, the deep palmar loop crosses the three compartments of the palm: thenar, middle and hypothenar. It arises from two sources, the large lateral radial artery and the more slender medial artery, the deep palmar branch of the ulnar.

The radial artery is occasionally double (Figs. 5c, f and 6) or may rarely run at the base of the second intermetacarpal space to join up with the palmar surface. Exceptionally it once again becomes dorsal at its termination, via the oblique proximal perforating branch at the base of the fourth intermetacarpal space. Its mean calibre in the furrow of the thumb is 2.9 mm, varying between 1.7 and 4.5 mm.

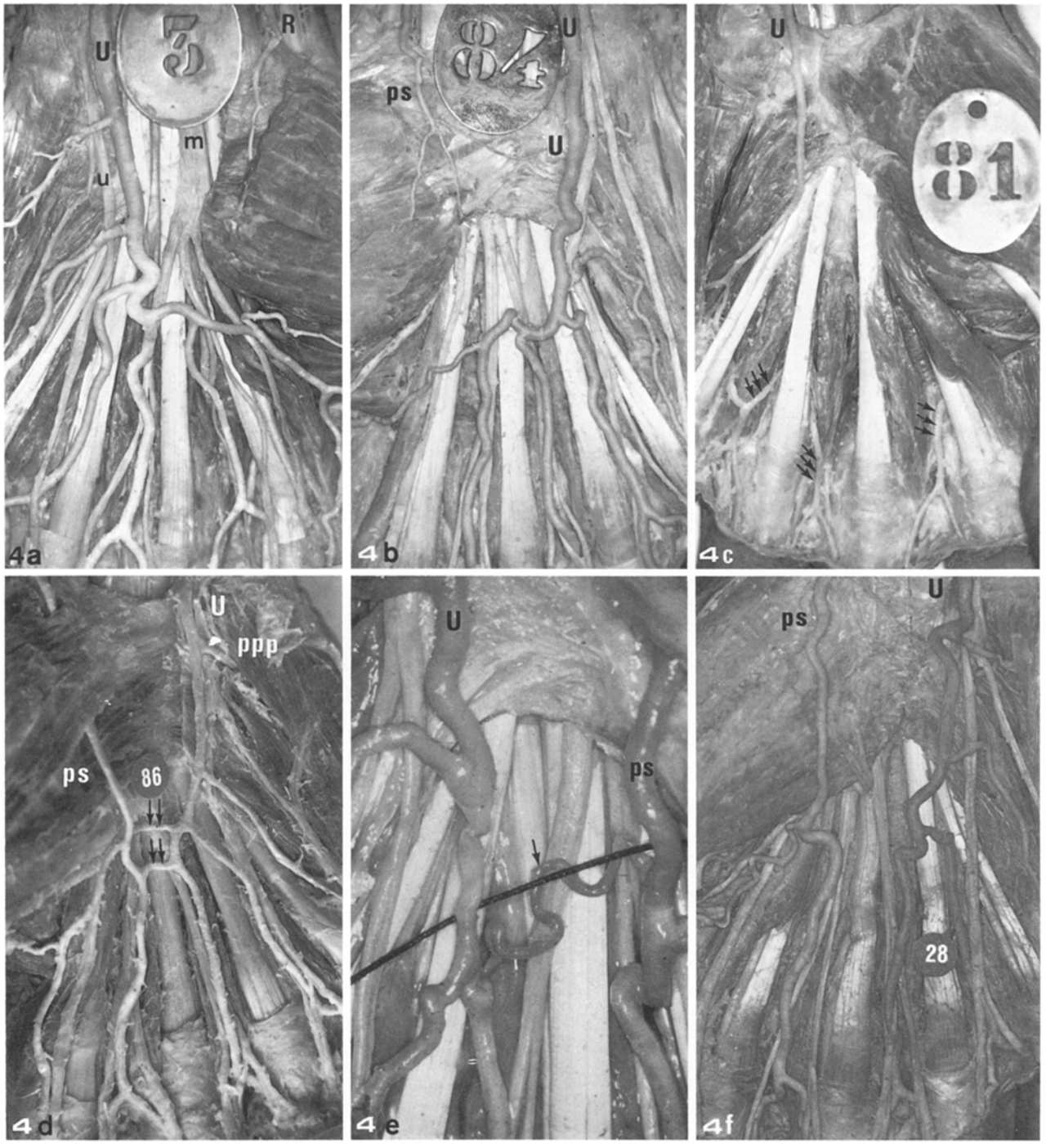

Fig. 4a–f
Superficial palmar plane: **a** and **b**, ulnar supply (*U*) predominent; **c**, palmar supply limited to the medial digital artery of the fifth finger; **d, e, f** radial supply via the superficial palmar branch (*ps*) with simple anastomoses (↗, **e**) or double anastomoses (↗↗, **d**) or without anastomoses (**f**)

↗↗↗ aa. metacarpeae palmares; *ppp* ramus palmaris profundus proximalis, *m* n. medianus, *u* n. ulnaris

Plan palmaire superficiel: **a** et **b** apport ulnaire (*U*) prédominant; **c** apport ulnaire limité à l'artère digitale médiale du V; **d, e, f** apport radial par le rameau palmaire superficiel (*ps*) avec anastomose simple (↗ **e**) ou double (↗↗ **d**) ou sans anastomose (**f**)

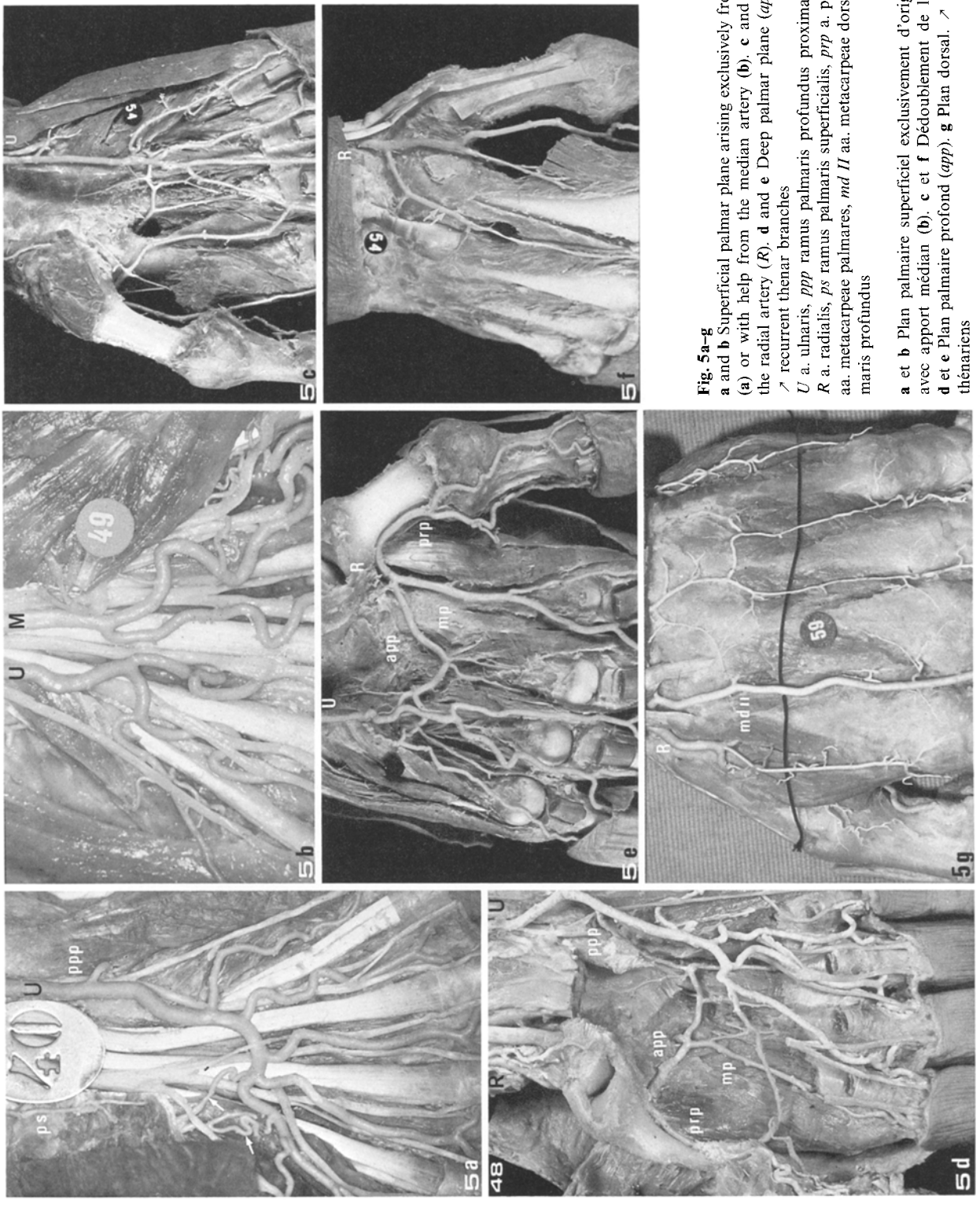

Fig. 5a–g
a and **b** Superficial palmar plane arising exclusively from the ulnar artery (**a**) or with help from the median artery (**b**). **c** and **f** Doubling up of the radial artery (*R*). **d** and **e** Deep palmar plane (*app*). **g** Dorsal plane
↗ recurrent thenar branches
U a. ulnaris, *ppp* ramus palmaris profundus proximalis, *M* a. mediana; *R* a. radialis, *ps* ramus palmaris superficialis, *prp* a. princeps pollicis, *mp* aa. metacarpeae palmares, *md II* aa. metacarpeae dorsales, *app* arcus palmaris profundus

a et **b** Plan palmaire superficiel exclusivement d'origine ulnaire (**a**) ou avec apport médian (**b**). **c** et **f** Dédoublement de l'artère radiale (*R*). **d** et **e** Plan palmaire profond (*app*). **g** Plan dorsal. ↗ rameaux récurrents thénariens

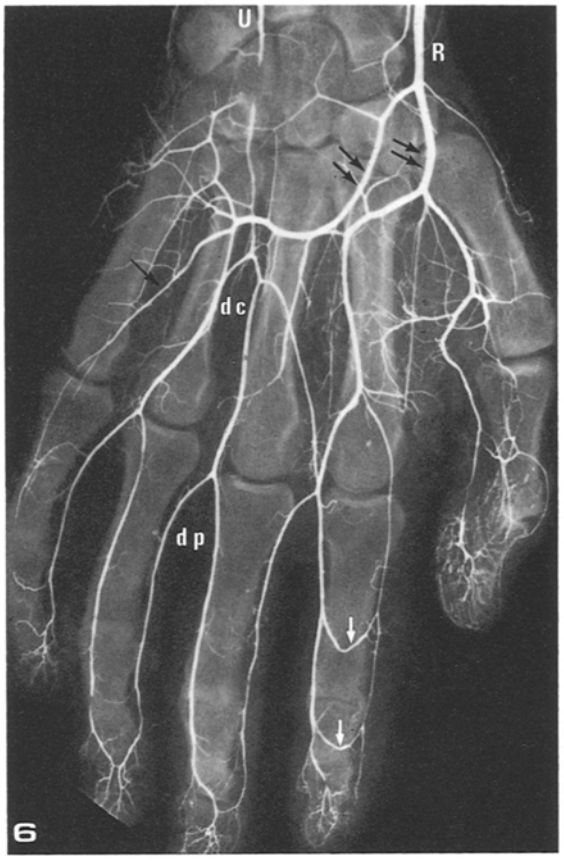

Fig. 6
Double (↗ ↗) radial artery (*R*)
U a. ulnaris, *dc* aa. digitales palmares communes, *dp* aa. digitales palmares propriae, ⇗ arcades interdigitales

Dédoublement (↗ ↗) de l'artère radiale (*R*)

The deep palmar branch arising from the ulnar artery (Fig. 7) may, as Haller noted in 1756, be double, so that two vessels on the medial side may join up with the radial artery. This duality, which was remarked upon by Delorme (1882) and again by Zuckerkandl (1896) in 79% of cases (he noted that occasionally only one of these branches joins up with the radial), was again confirmed by Jaschtschinski (1896) and Piersol (1907).

a) *The proximal deep palmar branch* (ramus palmaris profundus) is anatomically constant as Rouvière (1939) pointed out, and originates from the medial border of the ulnar artery in the furrow between the pisiform and hamate bones, at the base of the hypothenar eminence. It passes in front of the ulnar nerve in 79% of cases and behind it in the remaining cases, and subsequently divides into:
– one or several superficial muscular branches supplying the short palmar muscle and hypothenar muscles;
– a deep, often slender, branch accompanies the deep branch of the ulnar nerve, which crosses the fibres of the opponens of the fifth finger and the lateral wall of the hypothenar compartment before penetrating the middle palmar compartment in order to reach the medial compartment. In some cases it fails to attain the latter.

In view of the size of the muscular branch, Delorme (1882), Farabeuf (1843) and Dujarier (1904) applied the term 'false cubito-palmar artery'. In fact, occasionally it supplies only the hypothenar muscles.

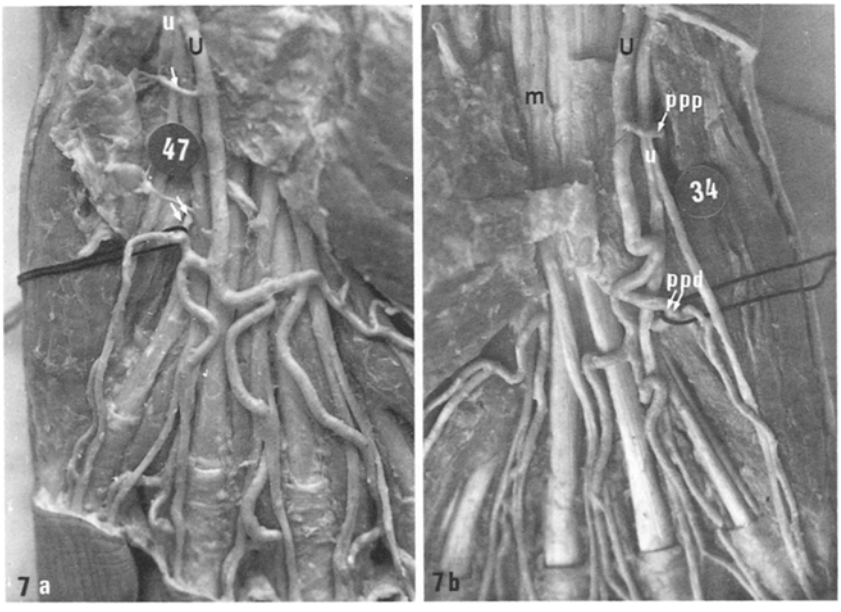

Fig. 7a and b
Duality of the deep palmar branch: the proximal branch (*ppp*) was constant but it joined up with the deep palmar arcade in only half the cases, its initial segment most commonly crossing over the ulnar nerve (*u*) (79% of cases); the distal branch (*ppd*) was only present in 62% of cases but it always contributed to the formation of the deep palmar arcade. *U* a. ulnaris, *m* n. medianus

Dualité du rameau palmaire profond: le rameau proximal (*ppp*) est constant mais il ne rejoint l'arcade palmaire profonde que dans la moitié des cas; son segment initial précroise le plus souvent (79% des cas) le nerf ulnaire (*u*); le rameau distal (*ppd*) n'est présent que dans 62% des observations mais il participe alors toujours à la formation de l'arcade palmaire profonde. *U* a. ulnaris, *m* n. medianus

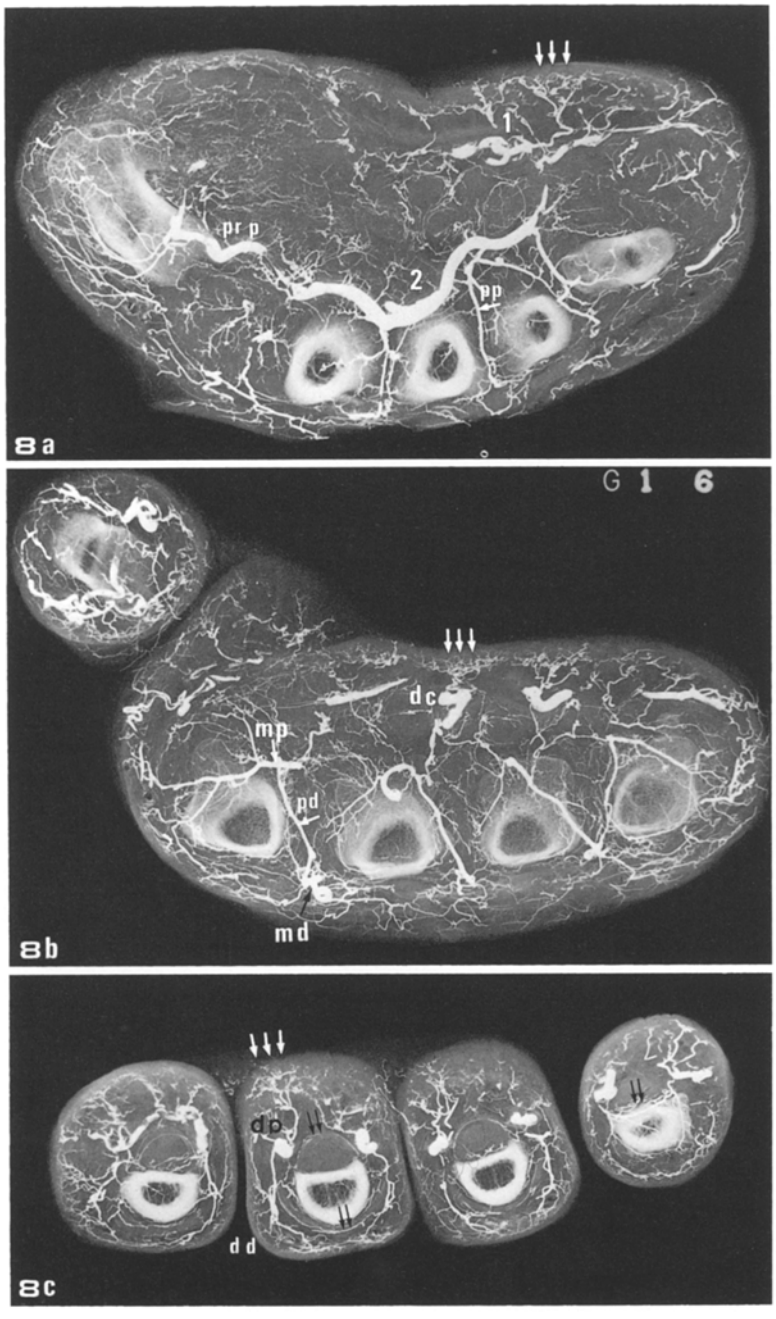

Fig. 8a–c
Transverse sections in the region of the base of the metacarpals (**a**), of the heads of the metacarpals (**b**) and at the level of the proximal phalanges of the first four fingers (**c**). *1* Termination of the ulnar artery, *2* deep palmar arcade, ↗ ↗ pre- and retrotendinous anastomoses, ↗ ↗ ↗ cutaneous perforating arteries

dc aa. digitales palmares communes, *dp* aa. digitales palmares propriae, *prp* a. princeps pollicis, *mp* a. metacarpeae palmares, *md* a. metacarpeae dorsales, *pp* aa. perforantes proximales, *pd* aa. perforantes distales, *dd* aa. digitales palmares dorsales

Coupes transversales à proximité de la base des métacarpiens (**a**), de la tête des métacarpiens (**b**) et au niveau des phalanges proximales des quatre derniers doigts (**c**). *1* Terminaison de l'artère ulnaire, *2* arcade palmaire profonde, ↗ ↗ anastomoses pré- et rétrotendinenses, ↗ ↗ ↗ artères perforantes cutanées

'It is rare that this branch of considerable calibre truly forms a deep palmar arcade; more commonly it is a filiform and functionless anastomosis' (Dujarier 1904). The first branch would be better called the hypothenar branch. Its mean calibre is 1.3 mm, varying from 0.5 to 2.5 mm.

b) *The distal deep palmar branch* is not always present. On occasions it has been confused with the proximal perforating branch of the fourth intermetacarpal space and according to Rouvière (1939) represents the 'false cubito-palmar artery'. Cruveilhier (1845) called it the radio-cubital branch. Winckler (1964) spoke of a supplementary deep palmar branch which could replace the first branch, and Gillot (1965) considered it an anastomotic branch, thus emphasizing its anatomically constant relationship with the radial artery. We observed this artery in 62% of cases; Delorme (1882) reported its presence in two-thirds of cases while Coleman and Anson (1961) reported its presence in 63.5%; this level of agreement in findings is remarkable. In a previous report from our

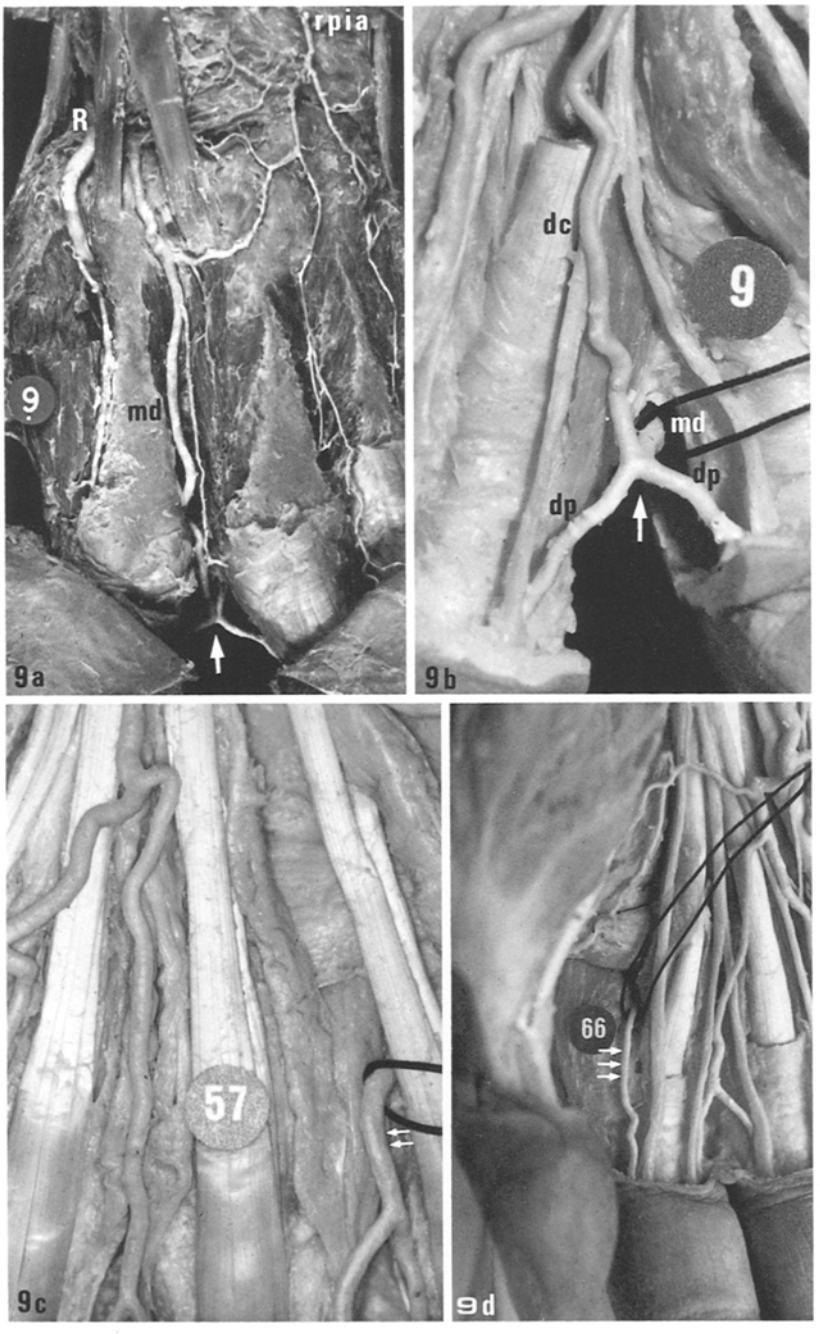

Fig. 9a–d
Formation of the palmar digital arteries (*dp*). **a** and **b** A double supply to these arteries was sometimes present in the second intermetacarpal space via the distal perforating branch of the dorsal metacarpal artery (*md*) and the common digital artery (*dc*); **c** and **d** Deep palmar artery originating from the palmar metacarpal arteries in the second intermetacarpal space (**c** ↗ ↗) and for the lateral digital artery of the index finger (**d** ↗ ↗ ↗). *rpia* posterior branch of the anterior interosseous artery.

Formation des artères digitales palmaires propres (*dp*). **a** et **b** Double apport parfois au 2e espace par le rameau perforant distal de l'artère métacarpienne dorsale (*md*) et par l'artère digitale commune (*dc*). **c** et **d** Origine palmaire profonde par les artères métacarpiennes palmaires au 2e espace (**c** ↗ ↗) et pour l'artère digitale latérale de l'index (**d** ↗ ↗ ↗); *rpia* rameau postérieur de l'artère interosseuse antérieure

laboratory, Lecluse (1973) found the artery in 25 cases out of 33 he examined. According to Landsmeer (1976) it is only present in man. Its origin is very variable and it may arise:
– sometimes at the level of or just below the origin of the medial palmar digital artery of the fifth finger;
– sometimes by a common trunk with this digital artery, one or other of them showing dominance in calibre or direction;
– sometimes by a common trunk with the common digital artery of the fourth intermetacarpal space. When such is the case it is at least as well developed (20 cases) or even better developed (42 cases) than the deep proximal branch. It joins up with the radial after a short course across the short flexor of the fifth finger, winding around the digital nerve of the fourth interspace. Its mean calibre is 1.3 mm, ranging from 0.5 to 2 mm.

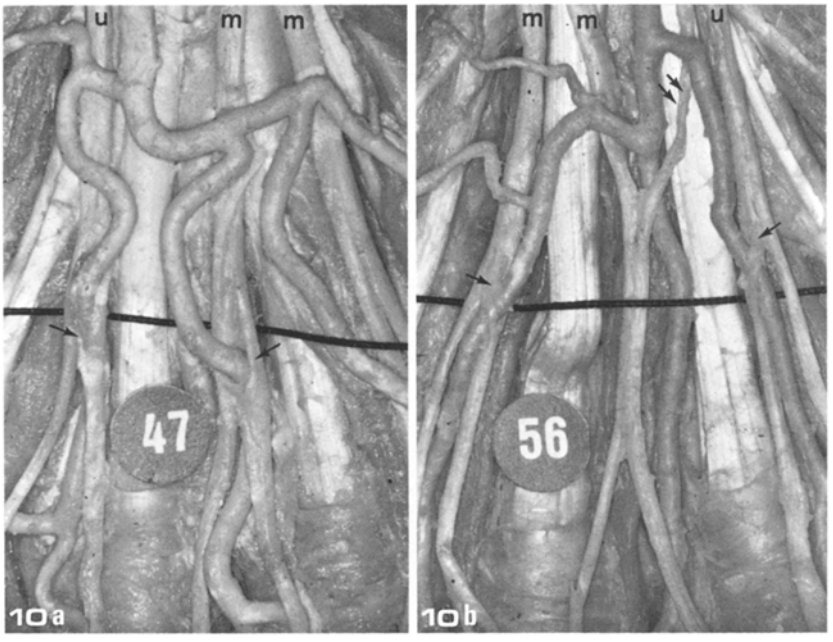

Fig. 10a, b
Relationships of the common palmar digital arteries with the common palmar digital nerves. ↗ The buttonholes of Hartmann. ↗ ↗ Superficial anastomosis of the common digital nerve of the fourth intermetacarpal space, branch of the ulnar nerve (*u*) with the common digital nerve of the third interspace, branch of the median nerve (*m*)

Rapports des artères digitales communes palmaires avec les nerfs digitaux communs palmaires. ↗ Boutonnières nerveuses de Hartmann. ↗ ↗ Anastomose superficielle du nerf digital commun du 4e espace, branche du nerf ulnaire (*u*) avec le nerf digital commun du 3e espace, branche du nerf médian (*m*)

The Perforating Branches (rami perforantes)

Situated respectively at the bases and heads of the metacarpal bones, the proximal and distal perforating branches are often slender (Fig. 8). – The passage of the radial artery from the anatomical snuff box to the palm of the hand traces the course of the proximal perforating artery to the first or occasionally second intermetacarpal space; occasionally the branch is double and may enter both spaces. Very exceptionally, when the perforating artery is developed in this region, the radial may pass towards the dorsal surface of the hand in the fourth intermetacarpal space. The poor arterial supply to the dorsal surface of the hand, contrasting with the richness of its venous network, suggests that these proximal perforating branches may provide a supplementary blood supply even if the direction of flow within them may vary according to functional needs. – The distal perforating branch may develop from a dorsal metacarpal artery (a. metacarpae dorsalis). Its calibre may be appreciable (2 cases), particularly in the second intermetacarpal space, and it may contribute to the formation of the corresponding palmar digital artery (a. digitales pamares propriae). The two dorsal digital arteries (a. digitales dorsales) peter out at the level of the proximal interphalangeal joint, as has been pointed out by Salmon and Dor (1933), Edwards (1960) and Coleman and Anson (1961).

The Palmar Digital Arteries (a. digitales palmares propriae)

The digital palmar arteries may receive a double blood supply from the ulnar artery, by way of the common digital arteries (superficial plane) and the radial artery by way of the palmar metacarpal arteries (deep plane). Again in the radial territory, i.e. in the first and second intermetacarpal spaces, these digital arteries may arise in part from a median artery, from the superficial palmar branch of the radial and/or from the distal perforating branch of the dorsal metacarpal artery (Figs. 5g and 9). The marginal arteries are also worth a mention. Kenesi et al. (1967) are certainly of this opinion. The calibre of these arteries is often small, whilst their origin is even more variable. The artery to the ring-finger is usually of superficial origin, that of the artery to the index usually deep or dorsal. The different sources of supply form an extremely variable vascular network in the first intermetacarpal space.

Variations in the Arteries of the Palm of the Hand and the Territories they Supply

First studied by Tiedeman (1846), and subsequently by numerous authors, the more recent amongst them being Le Guyader et al. (1965), Kenesi et al. (1967) and Barreiro (1979), the variations in arterial supply to the palm of the hand have been classified according to many different criteria:
– according to the main trunks of origin: ulnar, radial, median;
– according to the transverse anastomoses: complete or incomplete vascular loops;
– according to the distribution to the fingers.
Four main classifications dominate: that of Jaschtschinski (200 cases, 1896), that of Adachi (200 cases, 1928), that of Dubreuil-Chambardel (1200 cases, 1926), and that of Coleman and Anson (650 cases,

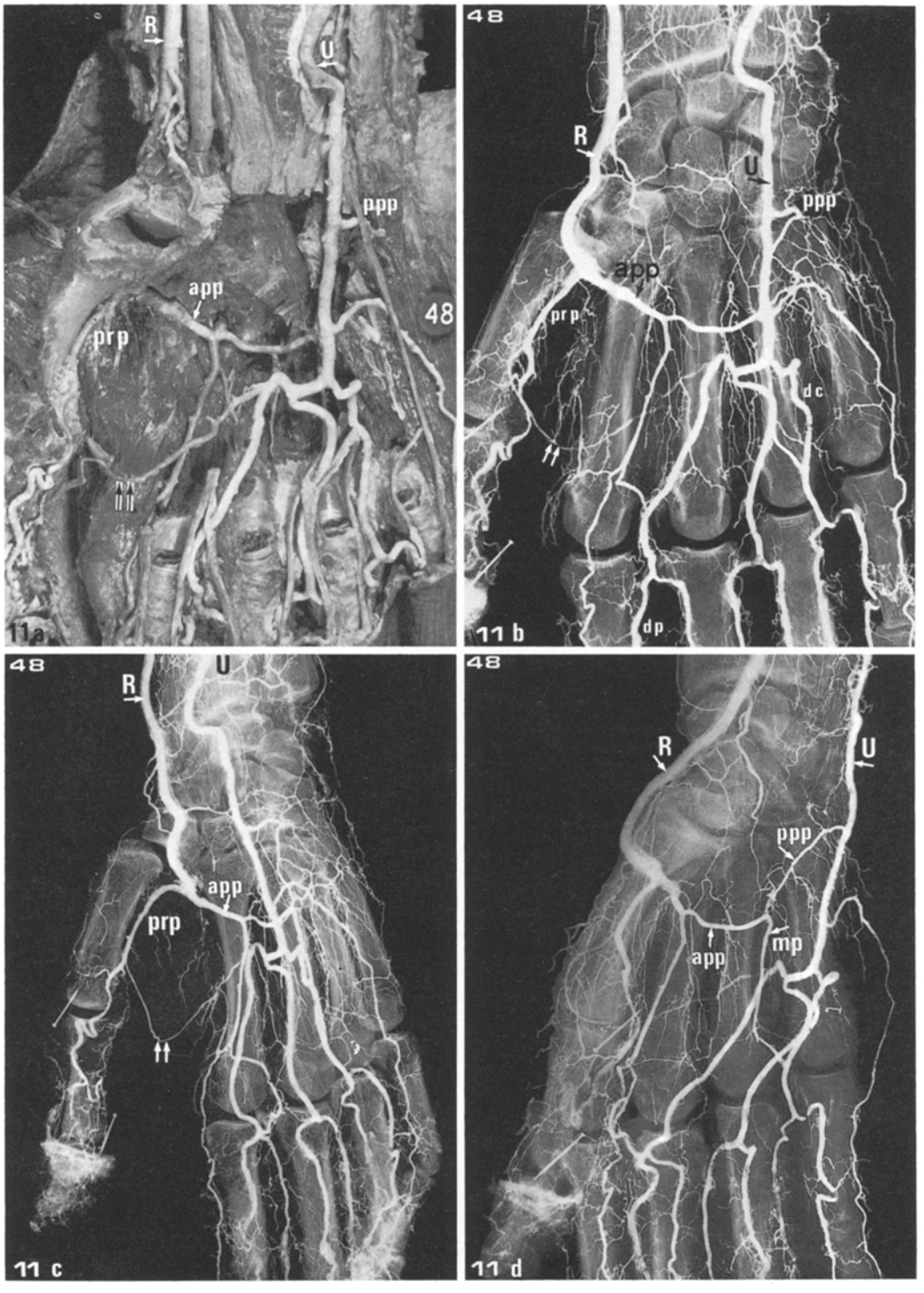

Fig. 11 a–d
While the superficial palmar arterial plane may be adequately studies using X-rays en face (**b**), a study of the arterial arrangement of the first interspace (**c**) and the course of the palmar branches and of the palmar metacarpal branches (**d**) requires oblique views. ↗ ↗ artery of the first commissure
U a. ulnaris, *dc* aa. digitales palmares communes, *dp* aa. digitales palmares propriae, *R* a. radialis, *prp* a. princeps pollicis, *app* arcus palmaris profundus, *mp* aa. metacarpeae palmares

Alors que le plan artériel palmaire superficiel est parfaitement analysé en incidence de face (**b**), l'analyse du dispositif artériel du Ier espace (**c**) et le trajet des rameaux palmaires profonds et des artères métacarpiennes palmaires (**d**) doit être complété par l'étude d'incidences obliques. ↗ ↗ artère de la 1ere commissure

1961). The last mentioned shows only minor modifications with respect to the classification of Jaschtschinski. The classification put forward by Dubreuil-Chambardel has the merit of being as valid for the arterial plane as for the origin of the digital arteries. Those of Jaschtschinski and Adachi are difficult to apply. Coleman and Anson have suggested two different classifications based on anastomoses whose slenderness we have noted time and time again. Despite the anastomoses the territories supplied by these vessels remain well defined.

We view the notion of vascular territories as fundamental, and the axis of the hand provides the best line of division as Edwards (1960) has pointed out. Whatever the origin of the digital arteries (superficial, deep or even dorsal in the second intermetacarpal space) we have been able to distinguish, like Edwards, two vascular territories:

– The medial territory: that of the ulnar artery. From the ulnar border of the hand distally, the first three digital arteries arise virtually always exclusively from the ulnar artery whose relative contribution to the formation of the digital arteries increases as far as the axis of the hand.

– The lateral territory: that of the radial artery with which may be associated a median artery.

The classification which we have chosen to adopt is based on the major trunks of origin of the arteries of the palm and on the extent of their superficial vascular territory. This classification comprises ten types and fails to take into account only the very rarest variations:

Group I (56 cases). The superficial palmar plane is formed by the ulnar artery alone. *Type UI* (13%): The termination of the ulnar artery crosses the axis of the hand and becomes lateral (1). *Type Um* (19%): The termination of the ulnar artery remains on the medial side of the axis of the hand. *Type U'l* (9%) and *Type U'm* (15%): recurrent thenar arterial branches of ulnar origin are present (Fig. 5a).

Group II (28 cases). The superficial palmar branch (PS) of radial origin joins the superficial palmar arterial plane and contributes more or less to the formation of the arterial network. *Type Rl* (4%): The termination of PS remains on the same side of the axis of the hand. *Type Rm* (3%): The termination of PS crosses over the axis of the hand and becomes medial. *Type R'l* (18%) and *Type R'm* (3%: The PS anastomoses with the ulnar artery forming the classical arcade.

Group III (16 cases). The median artery (M) joins up with the superficial palmar arterial network. *Type Mo* (4%): The median artery joins up with the network but does not really participate in its supply (Fig. 2a). *Type Md* (12%): The median artery competes for the supply to the digital arteries (Figs. 2e and 5b).

Conclusion

Of more interest than the classification itself, certain fundamental implications arise from this study:

– The wide variation in the superficial arterial plane reinforced in a not insignificant number of cases by a median artery whose vascular territory remains lateral to the axis of the hand.

– The duality of the deep palmar artery and the existence in almost every case of an arcade or palmar arterial or deep palmar arterial loop whose detection necessitates X-rays in the oblique plane (Fig. 11).

– The complexity of the arterial arrangement in the first intermetacarpal space.

– The richness of anastomoses, as much between the arteries of the palm themselves as between these and the dorsal network via perforating branches.

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