

Vascular Anatomy of the Right Colon

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Importance of anatomy

Colonic resection

Colonic grafts

Retrocolic anastomoses



Implications for laparoscopic colectomy

Intracorporeal vessel ligation

Inability to palpate

Oncologic resection

Which is the 'normal'?

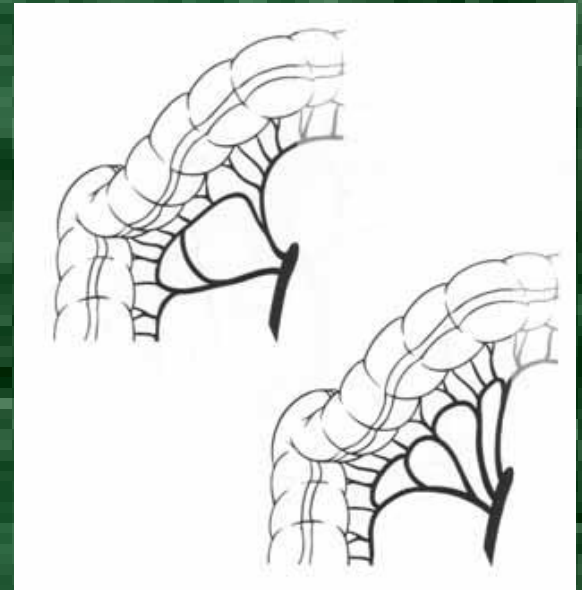
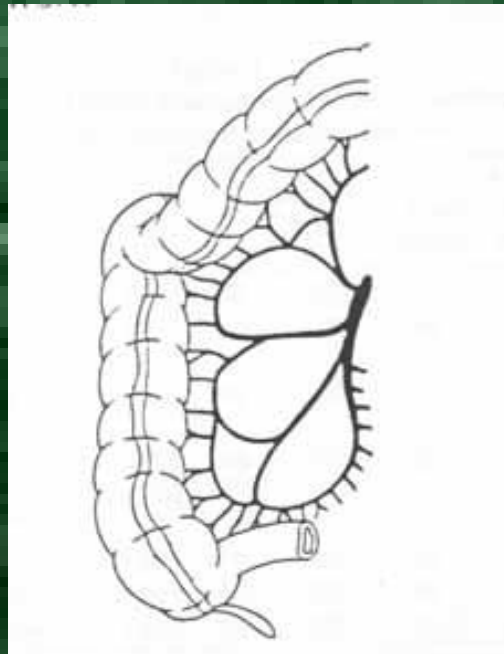
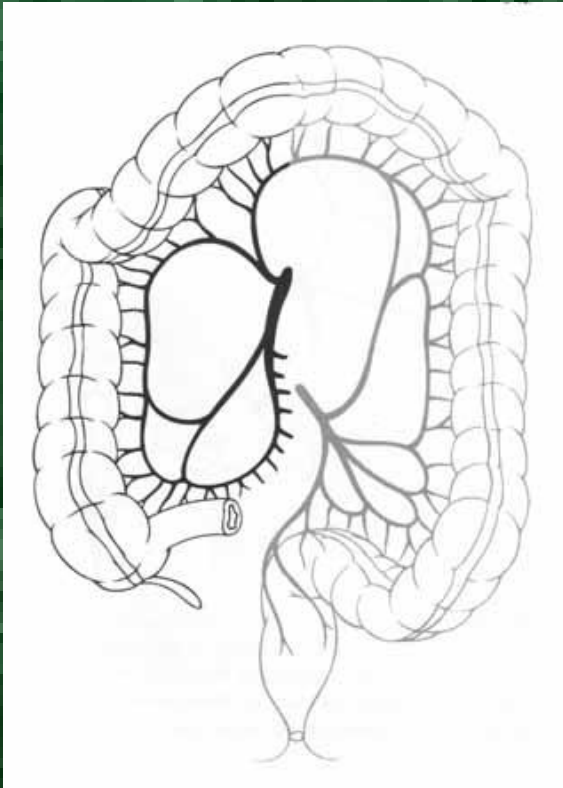


Table 1.
Incidence of Colic Arteries Arising from Superior
Mesenteric Artery* (Literature Review)

Author	Year	n	Ileocolic Artery	Right Colic Artery	Middle Colic Artery
Sonneland <i>et al.</i> ¹⁸	1958	600	100	29	96
Steward and Rankin ¹⁹	1933	40	100	40	95
VanDamme and Bonte ²³	1990	156	100	13	99
Basmajian ³⁷	1955	45	100	38	82
Jamieson and Dobson ³⁹	1909	23	100	?	?
Michels ⁴²	1965	400	100	38	78
Nelson <i>et al.</i> ⁴³	1988	50	100	34	97
Present study	1996	56	100	10.7	98.2

* Values noted are percentages.

Table 2.
No. of Colic Arteries Arising from Superior Mesenteric
Artery* (Literature Review)

Author	Year	n	1	2	3	4
Sonneland et al. ¹⁸	1958	600	1.8	66.6	30.9	1.2
Steward and Rankin ¹⁹	1933	40	?	60	?	?
Basmajian ³⁷	1955	45	0	64.4	31.1	4.5
Jamieson and Dobson ³⁹	1909	23	?	>50	<50	?
Present study	1996	56	0	89.3	10.7	0

* Values noted are percentages.

Hypothesis

The right colic artery arises infrequently from the SMA

Most commonly there are two colonic arteries arising independently from the SMA

Aims

Define how many colic vessels originated from the SMA

Assess the precise location of their origin

Study the middle colic artery in particular

Study the venous anatomy of the right colon

Materials and Methods

Detailed dissections in situ in 20 nonselected cadavers

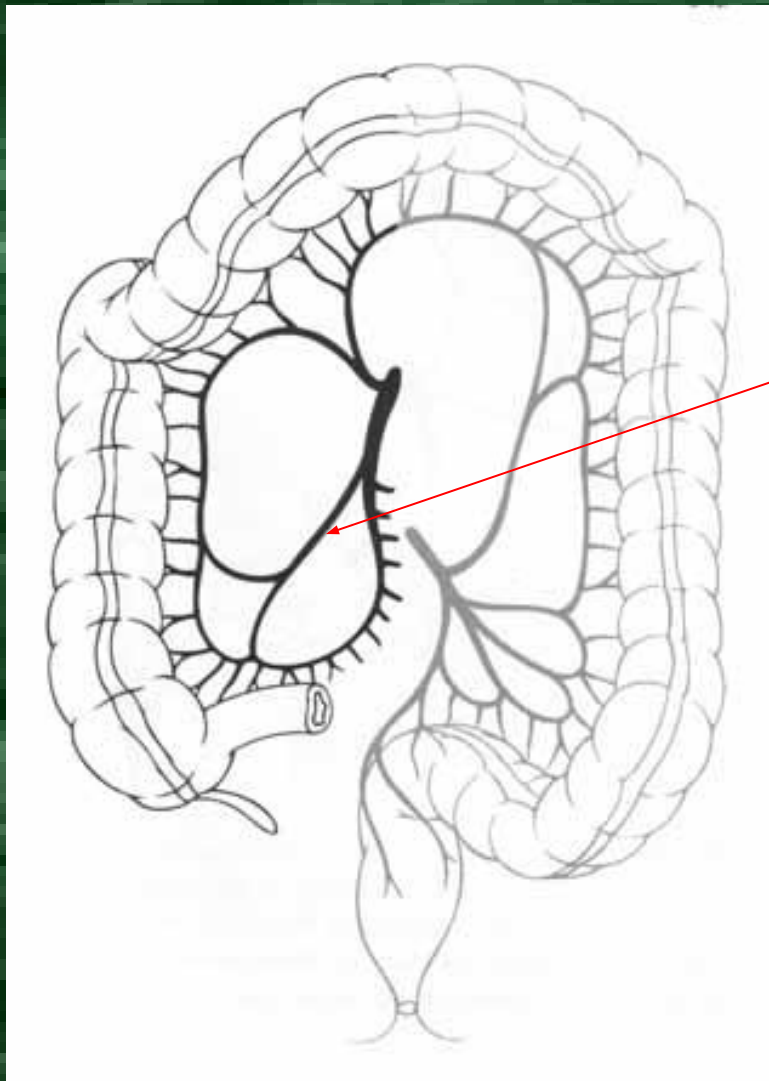
Exclusion – Pathology, surgery that obscure anatomy

No radiologic or perfusion study

Named artery to the right colon arises directly from the SMA

Arterial Anatomy of Right Colon

From Twenty cadavers

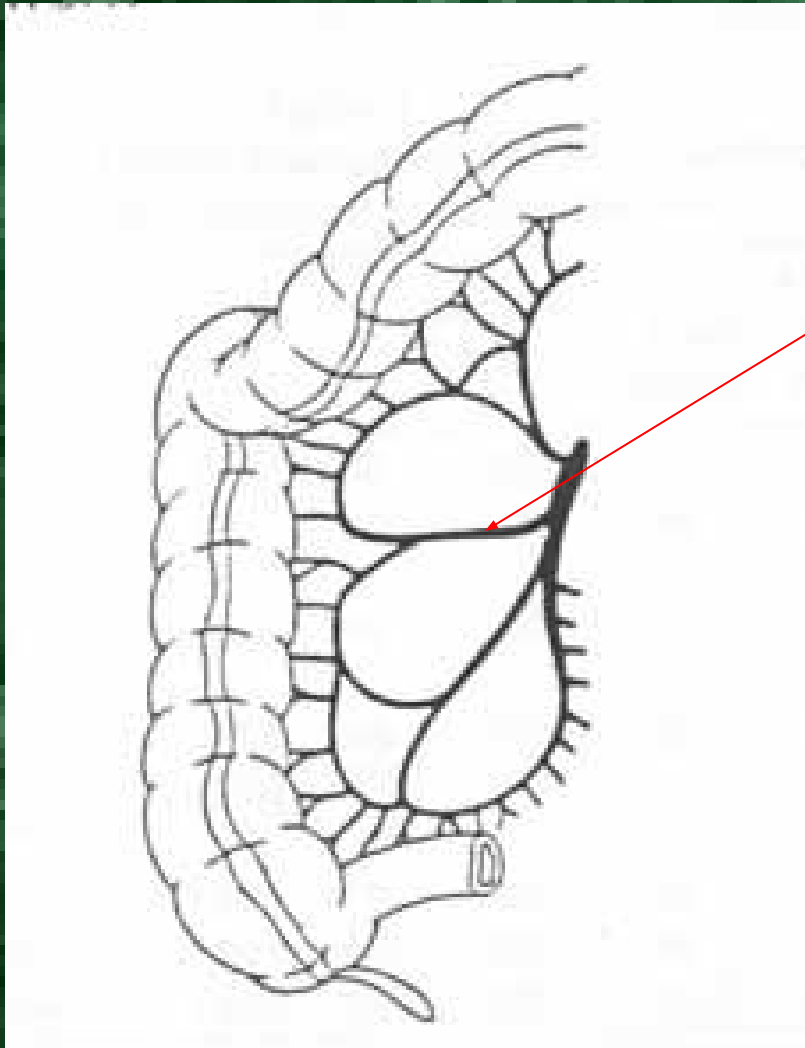


Ileocolic artery

20/20 100%

15 posterior to SMV

5 anterior to SMV

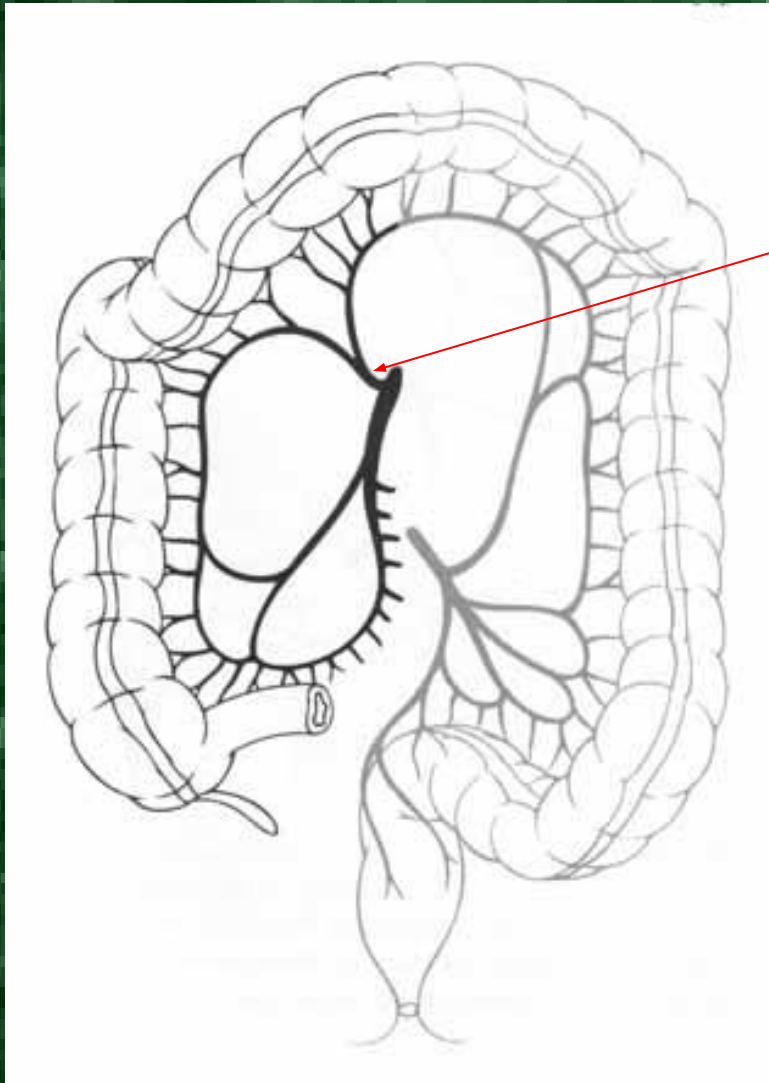


Right colic artery

4/20 20%

3 anterior to SMV

1 posterior to SMV



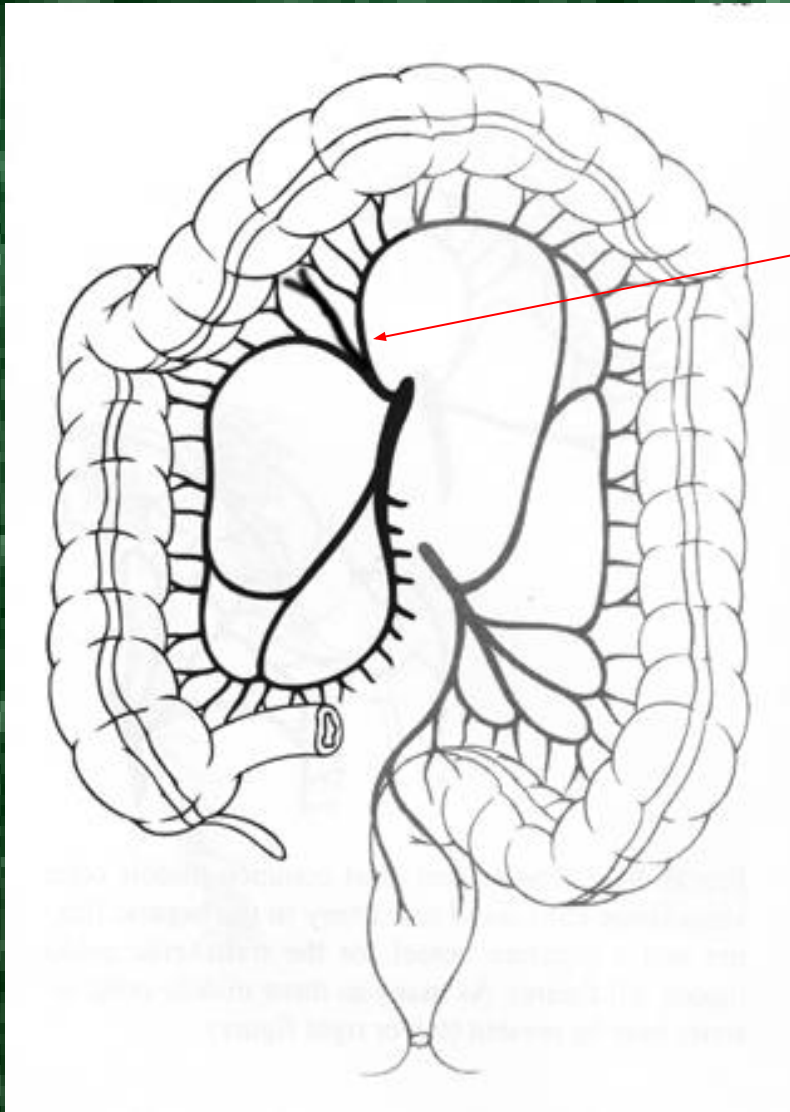
Middle colic artery

20/20 100%

20/20 Single origin

3 cm (range 1.5-8 cm)

18/20 2 branches



MCA 3 branches

2/20 10%

Summary

The ileocolic and middle colic arteries are constant independent branches arising from the SMA that supply the large intestine

The right colic artery arises directly from the SMA in 20%

Venous Anatomy of Right Colon

From Eighteen cadavers

Definition

- 1) **Middle colic vein :**
From Transverse
colon
- 2) **Right colic vein:**
From Ascending
colon
- 3) **Ileocolic vein:**
From Terminal
ileum



NOT marginal veins

Ileocolic Vein

All 18 cases have one ICV
to SMV

Right Colic Vein

Number 0 : 8/18
44.4%

1 : 10/18
55.6%

RCV to SMV : 4 /18
22.2%

GCT : 6 /18
33.3%

Middle Colic Vein

Number 1 : 11 /18

61.1%

2 : 6 /18

33.3%

3 : 1 /18

6.0%

Middle Colic Vein

Main MCV existence 18/18 100%
to SMV : 16/18 88.9%
GCT : 2/18 11.1%

Acc MCV existence 7/18 38.9%
to SMV : 2/18 11.1%
GCT : 6/18 33.3%
(overlapped case :
)

Gastrocolic Trunk

Existence 14/18 77.8%

From

MCV main 2/18 11.1%

MCV acc. 6/18 33.3%

RCV 6/18 33.3%

Summary n=18

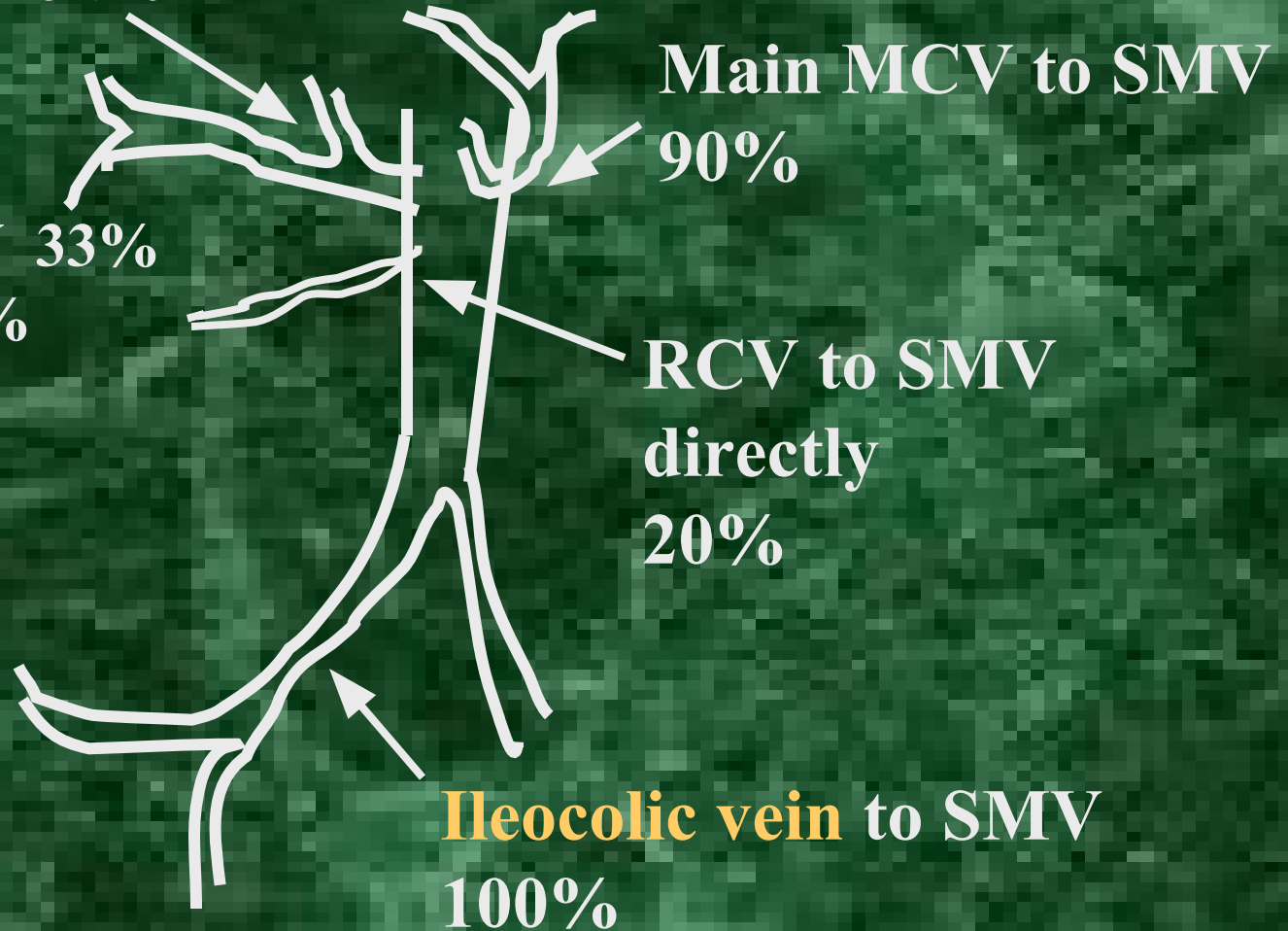
Gastrocolic trunk

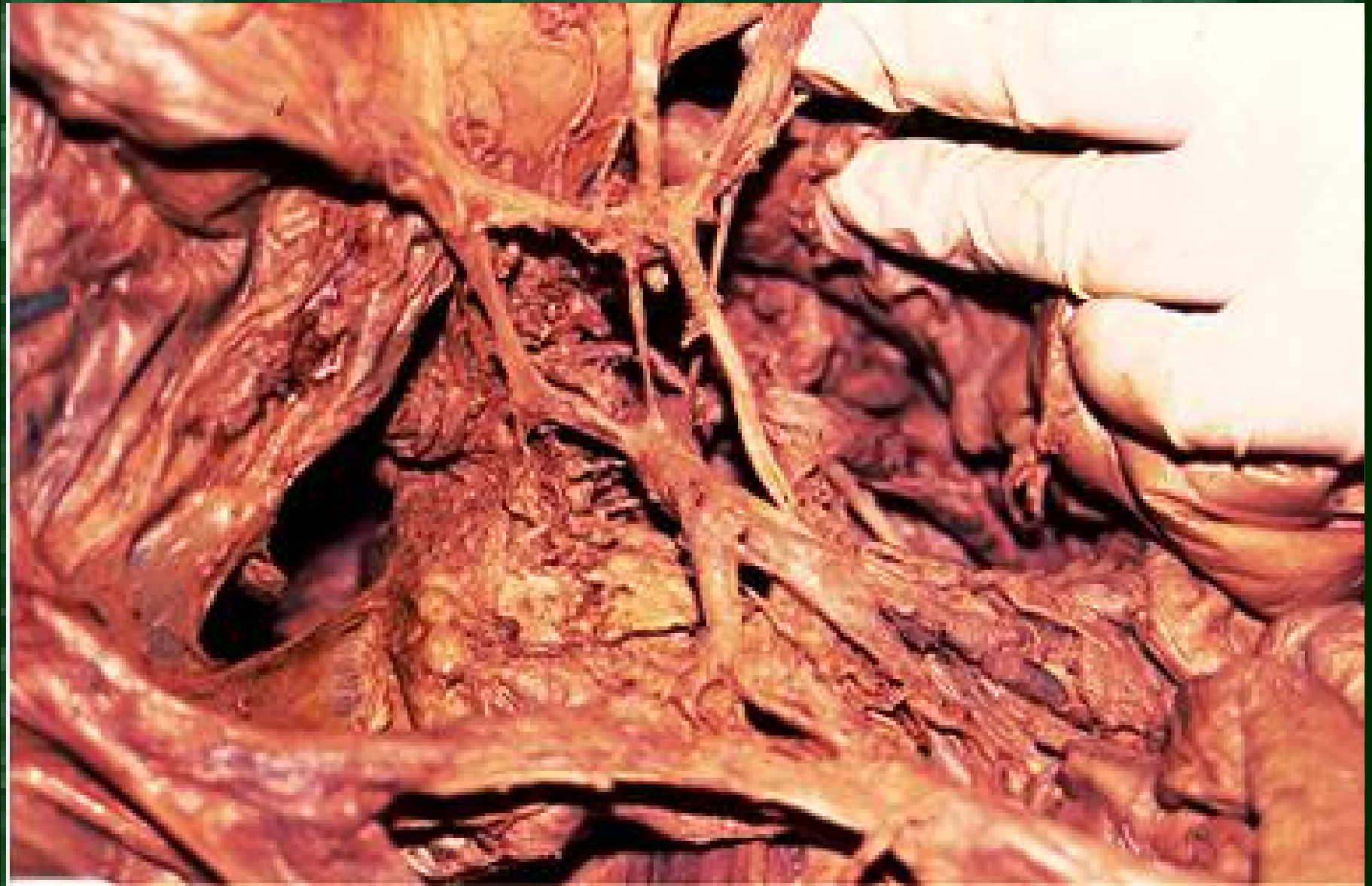
80%

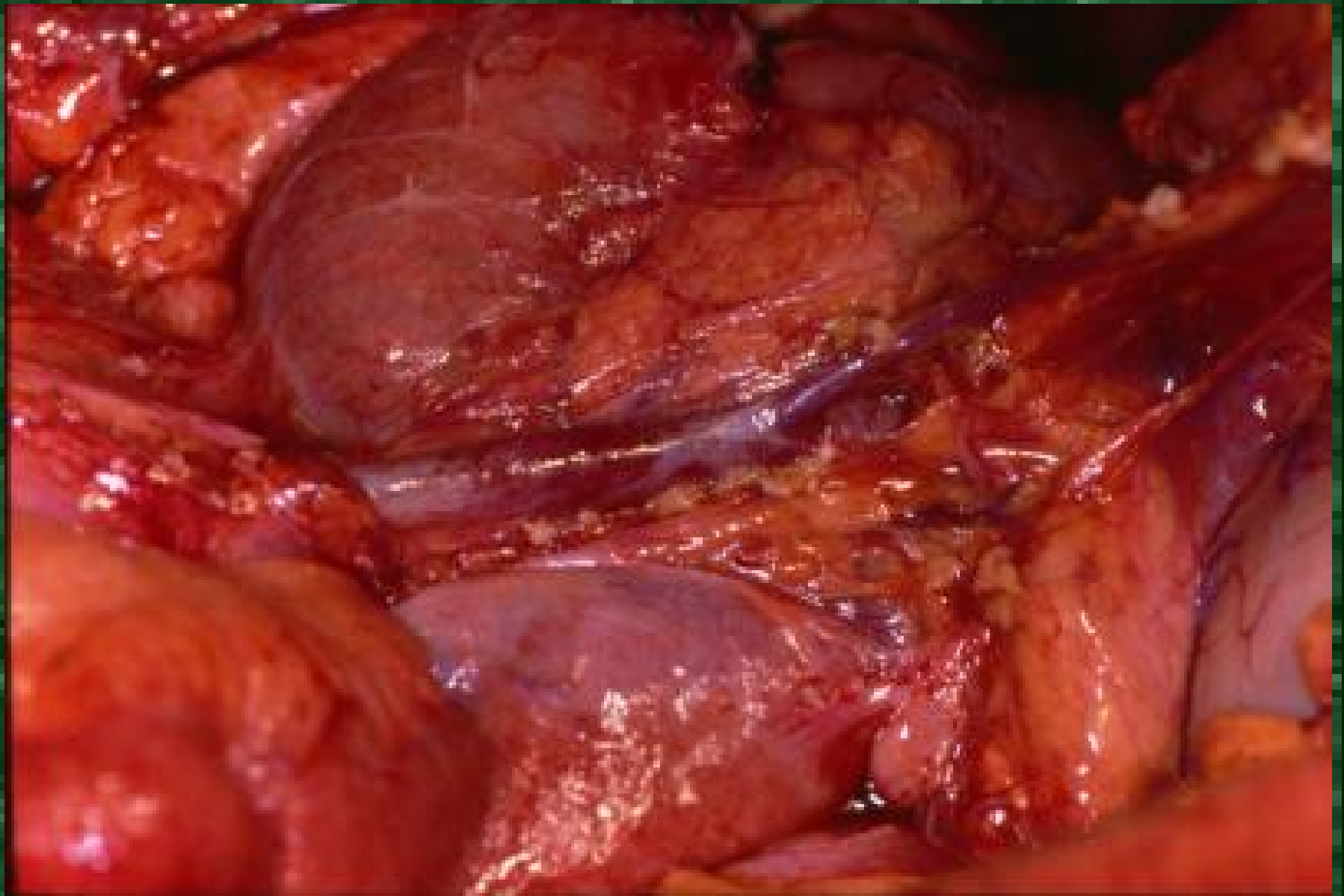
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Acc.MCV 33%

RCV 33%







Conclusion

A detailed knowledge of vascular anatomy may help lower the risk of vascular complication and enhance the performance of laparoscopic oncologic colorectal surgery