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Typology of Terminal Colon at the Chu of Point G in Bamako

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Abstract **Original Research Article**

Purpose: To describe the morphometric types of the terminal colon. ***Patients and Methods:*** This was an anatomical study by laparotomy for the terminal colon on 7 living subjects and by anatomical dissection on 8 fresh cadaveric subjects in the department of surgery B of the CHU of Point G and in the anatomy laboratory of the faculties of medicine of odonto-stomatology (FMOS) and pharmacy (FAPH) of Bamako from January 1, 2018 to December 31, 2019 or 2 years. Patients without a mass on the terminal recto-colonic junction or volvulus of the terminal colon or abdominopelvic mass on the terminal colon and fresh cadavers declared unknown without a laparotomy scar coming from Bamako University Hospitals or Reference Centers (CS Réf) were included in this study. ***Results:*** We investigated 15 cases, including 7 live cases and 8 cadavers. Males accounted for 60% (n=9) and females 40% (n=6), i.e. a sex ratio of 1.5. Mean age was 47.14 ±15.57 years. The mean length of the terminal colon was 41.79 cm±13.37. The mean length of the terminal mesocolon was 11.18 cm. The maximum height of the terminal mesocolon averaged 10.70 cm ± 3.61 cm. There were 46.72% (n=7) medium-form cases, 33.30% (n=5) short-form cases and 19.98% (n=3) long-form cases. ***Conclusion:*** The terminal colon can be short, medium or long, depending on its length and the height of its meso.

Keywords: Typology, terminal colon, mesocolon, volvulus.

INTRODUCTION

The terminal colon, known as the sigmoid, follows the descending colon at the level of the terminal line of the pelvis, and continues into the rectum at the level of the sacral vertebra S3. It averages 40 cm in length and 3 cm in calibre. It is then highly mobile, suspended from the wall by a long pelvic mesocolon, and describes a curve whose concavity looks backwards and downwards.

It forms a loop whose location, relationships and mobility vary with the length of the colon [1].

The long terminal or abdominopelvic colon: sometimes very long, reaching up to 80 cm. In these cases, the colonic loop, concave at the bottom, rises more or less upwards into the abdominal cavity in front of the small intestines and descending colon. This can be a factor in the occurrence of intestinal occlusion by volvulus.

The terminal colon is attached to the wall by the terminal mesocolon [2]. The volvulus of the terinal colon is its torsion on its mesocolonic axis, producing a low occlusion by strangulation [3].

Volvulus of the pelvic terminal colon is the most frequent cause of colonic occlusion [4, 5]. The frequency of this colonic surgical emergency is thought to be related to the length of the pelvic colon [1, 6]. Despite the high frequency of morbi-mortality of volvulus of the terminal colon few studies have been carried out on the anatomical variations of the terminal colon hence the interest of this work.

METHODS

This was an anatomical study by laparotomy for the terminal colon performed on 7 living subjects and by anatomical dissection on 8 cadaveric, fresh, non-traumatized subjects, abdominopelvic mass and in patients who had an abdominopelvic laparotomy except on the terminal colon in the surgical department B of the CHU du Point G and in the anatomy laboratory of the

faculties of medicine, odonto-stomatology (FMOS) and pharmacy (FAPH) of Bamako from January 1, 2018 to December 31, 2019, i.e. 2 years.

The study included all cadavers without a laparotomy history and unidentified who exceeded the maximum time of stay in the morgues of the three CHUs and six reference centers (CS Réf) of Bamako and Kati and patients from CHU Point G without a mass on the terminal recto-colonic junction and terminal volvulus whose measurements were made intraoperatively in the operating room. The anatomical parameters of the colon measured are shown in Fig 1, and included: position, shape, types, total length of the terminal colon as measured at the antimesocolic border.

We included in this study patients without abdominopelvic masses and cadavers without laparotomy scars.

RESULTS

We investigated 15 cases, including 7 living and 8 cadavers.

SOCIODEMOGRAPHIC ASPECTS

- Males were 57.14% (9) and females 42.86% (6), i.e. a sex ratio of 1.5.
- The average age of the subjects was 47.14 years, with extremes of 23 and 82 years.
- Average height was 1.67 m with extremes of1.57 and 1.87 m.

MORPHOMETRY

In living subjects and cadavers, the mean length of the free edge (antimesocolic) of the terminal colon was 41.79 cm, with extremes of 21 and 63.5 cm (Figure 1).

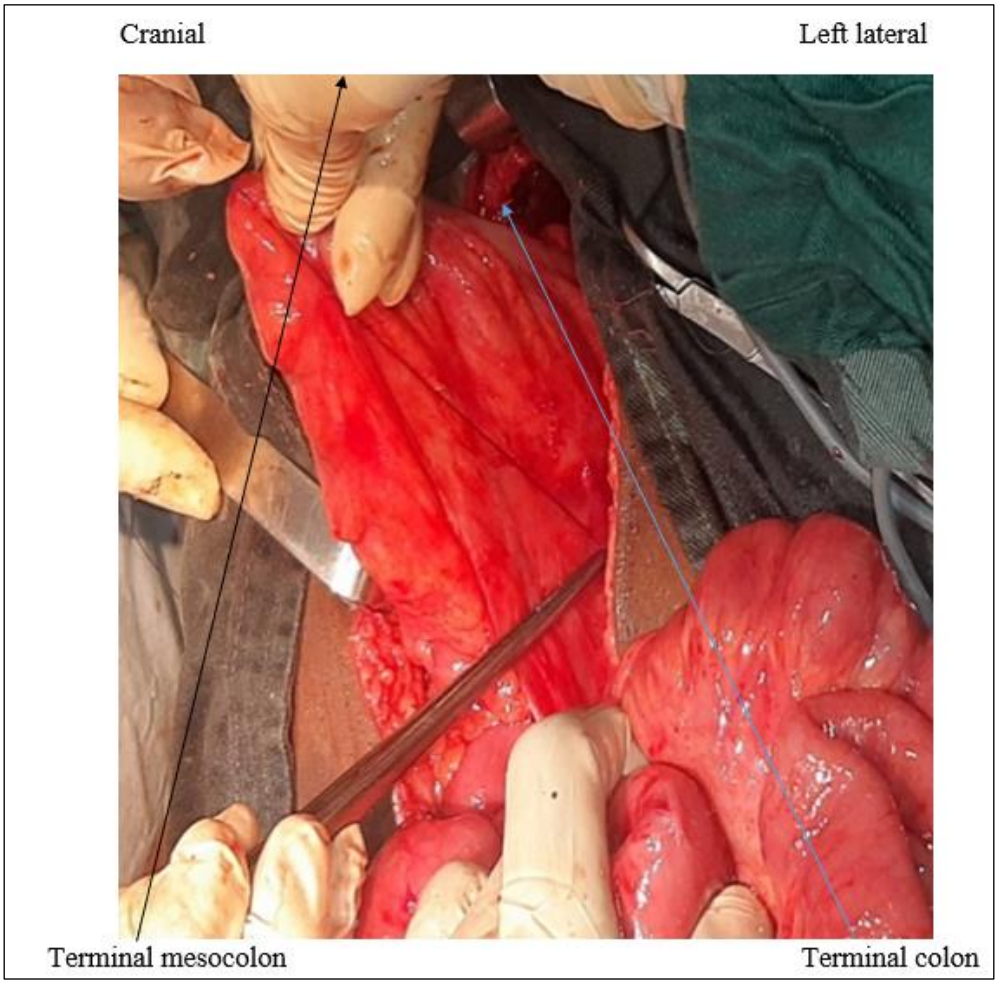

Figure 1: Intraoperative images

Total length of the terminal colon at its free edge (intraoperative image)

After terminal colon resection in cadavers, the mean length of the free edge of the terminal colon was 45.87 cm, with extremes of 33 and 62 cm (Figure 2).

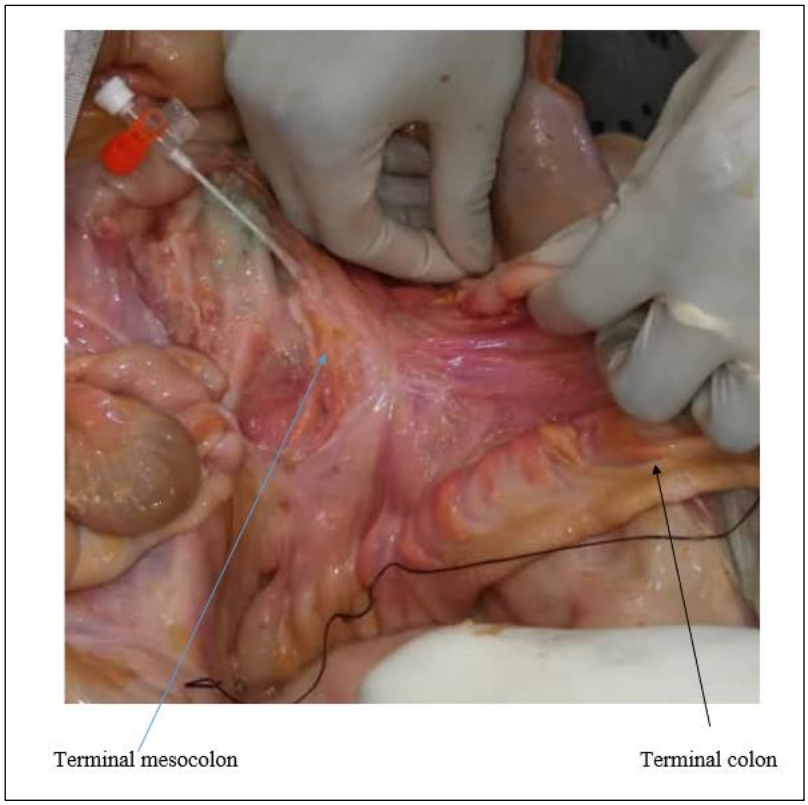

Figure 2: Total length of the terminal colon at its mesocolonic edge (during dissection)

Short forms were 33.30% (n=5); medium 46.72% (n= 2+5); and long 19.98% (n=3). Medium and long forms 66.70% (n=7) can lead to volvulus of the terminal colon. The position was inverted V 73.26% (n=11) and rectilinear 26.74% (n=4).

The different types of terminal colon were: short types in 33.30% (n=5); medium "sigma" types in 33.30% (n=5) and medium "omega" types in "omega" in 13.42% (n=2); long types in 19.98% (n=3) (Figure 3).

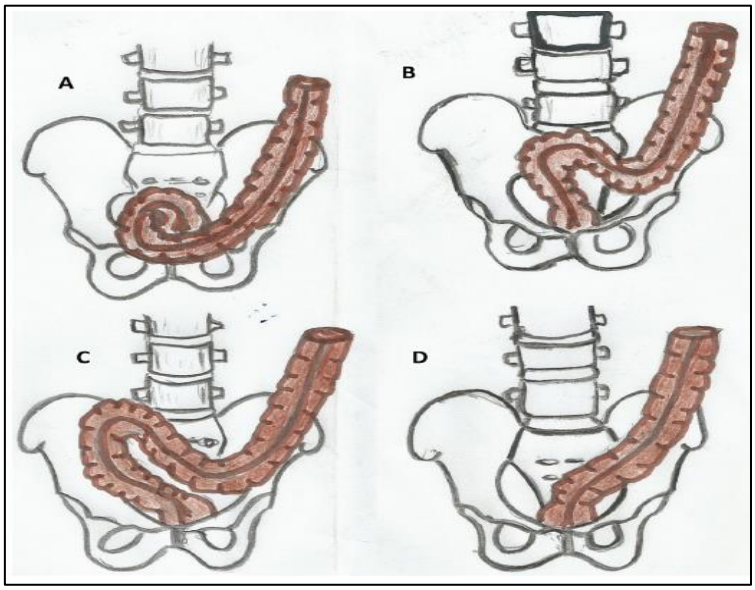

Figure 3: Morphotypes of the pelvic colon according to Kamina and Di Marino [1].
A: medium sigma type, B: medium omega type, C: long type, D: short type
Figure 3 D: short type or direct form (anterior view) terminal colon
Figure 3 A: medium type or "sigma" shape (anterior view) terminal colon
Figure 3 B: medium type or "omega" shape (anterior view) terminal colon
Figure 3 C: long type or "omega" shape (anterior view) terminal colon

DISCUSSION

The terminal colon is still referred to as the pelvic colon because of its usual location in the pelvic cavity, according to some authors [7]. For Testut [7], it occupies the entire pelvic excavation, nine times out of ten. For Leguerrier [8], "it is either located entirely in the pelvic cavity (short and medium types), or it ascends into the lower part of the abdomen, or even into the right iliac fossa".

The term "pelvic colon" is debatable in the light of our observations, in which the terminal colon is in the majority of cases (66.70%) in an abdominopelvic position (medium and long types).

We propose a topographical classification for which the pelvic colon corresponds to the terminal colonic loop and is most often located in the greater pelvis, i.e. the lower part of the abdomen. We have thus found 4 types: long, medium "sigma", medium "omega" and short.

The medium or "sigma" type accounts for 70% of cases [8], the short type for 10% [8, 9] and the long or "omega" type for 20% [8]. This corroborates our results, which gave the medium type as the most frequent, accounting for 46.72% of cases, with the short type following at 33.30%. The long type was the rarest in our series, accounting for 19.98% of cases.

In our series, the mean length was 41.79 cm, with extremes of 21 and 63.5 cm in both live and cadaver cases. There is considerable discrepancy between authors.

It ranges from Katzarski's 31.2 cm [10] to Kamina's 40 cm [1]. Ertem [11], Lisowski [12] and Bhatnagar [4] mention 66.8 cm, 48 cm and 28 cm respectively.

As for maximum length, most authors [8, 13, 14,] agree that in the long type, it can reach 80 cm. For shorter lengths, our results are similar to the 21 cm of Leguerrier [8] and Perlemuter [15].

CONCLUSION

There are 4 types of terminal colon: long, medium sigma, medium omega and short. Any of the first three can lead to volvulus of the terminal colon.

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