Corona Mortis: Retrospective Evaluation of Its Clinical Prevalence, Anatomy, and Relevance in 185 Patients Operated via Anterior Approaches to the Pelvic Ring and Acetabulum

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Background

- Elderly population growth leads to rising pelvic ring and acetabular fractures
- The "corona mortis" connects the obturator and external iliac/epigastric vessels
- It presents bleeding risks during anterior pelvic surgeries
- Literature highlights a discrepancy between cadaveric & clinical CM prevalence

Purpose

- Reexamine the clinical prevalence, characteristics, and significance of the corona mortis in anterior pelvic approaches
- Explore gender-related variations

Methods

- Analyzed 185 patients' theatre reports (73 females; avg. age 62.8±17.2 years) from 01/2008-12/2022
- Surgeries addressed pelvic ring injuries and acetabular fractures via anterior approaches (Pararectus/Stoppa)
- Corona mortis (CM) routinely identified, assessed, and occluded
- 25 bilateral upper pubic ramus exposures, analyzing 210 hemipelvises
- Excluded reports missing CM mentions and cases with approach revisions

Parameter	Value
Number of patients (number)	185
Female (number; [percent])	73 (39%)
Mean age (standard deviation)	62.8 (±17.2)
Mean BMI (standard deviation)	25.6 (±5.0)
Bilateral dissection	25
Total Hemipelvises	210
Acetabular fractures (number; [percent])	100 (54%)
Pelvic ring injuries (number; [percent])	63 (34%)
Combined acetabular fractures and pelvic ring (number; [percent])	22 (12%)

Table 1: Patient demographics

Results

Table 2

Parameter	Value
≥ 1 CM, any type (number; [percent[1]])	170 (81%)
Venous CM vein and/or artery (number; [percent[1]])	159 (76%)
Arterial CM and/or vein (number; [percent[1]])	47 (22%)
Only venous CM (number; [percent[1]])	123 (58%)
Only arterial CM (number; [percent[1]])	11 (6%)
Both CM types (number; [percent[1]])	36 (17%)
No CM (number; [percent[1]])	40 (19%)
Bilateral CM (number; [percent][2])	17 (68%)
Ruptured CM (number; [percent[1]])	10 (5%)
Accidental CM injury (number; [percent[1]])	1 (0.5%)

Table 2: Results (entire cohort). [1]% of hemipelvises [2]% of cases with bilateral dissection

Figure 1

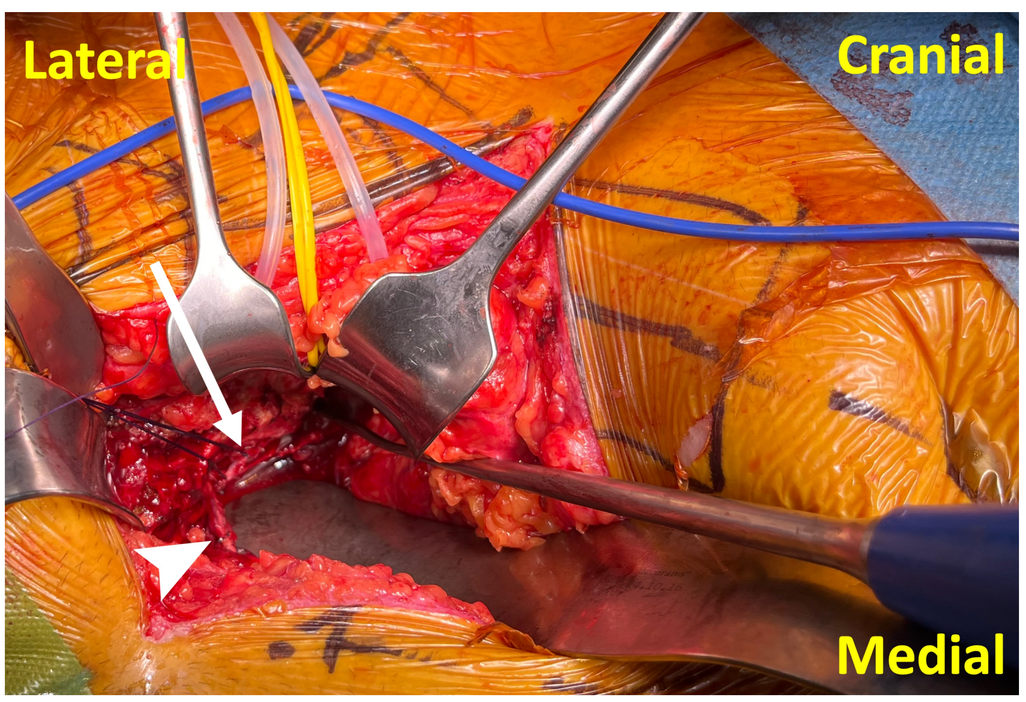

Figure 1: Intraoperative view of the CM (Pararectus). Arrowhead: Corona mortis (clipped). Arrow: Obturator vein on quadrilateral surface.

Table 3

Group (Hemipelvises)	Female (87)	Male (123)	p-Value
≥ 1 CM, any type (number; [percent[1]])	80 (91%)	90 (73%)	0.001
Venous CM ± artery (number; [percent[1]])	73 (84%)	86 (70%)	0.03
Arterial CM ± vein (number; [percent[1]])	23 (26%)	24 (20%)	0.31
Both CM types (number; [percent[1]])	16 (18%)	20 (16%)	0.59

Table 3: Gender-based subgroup comparison. [1]% of hemipelvises

Figure 2

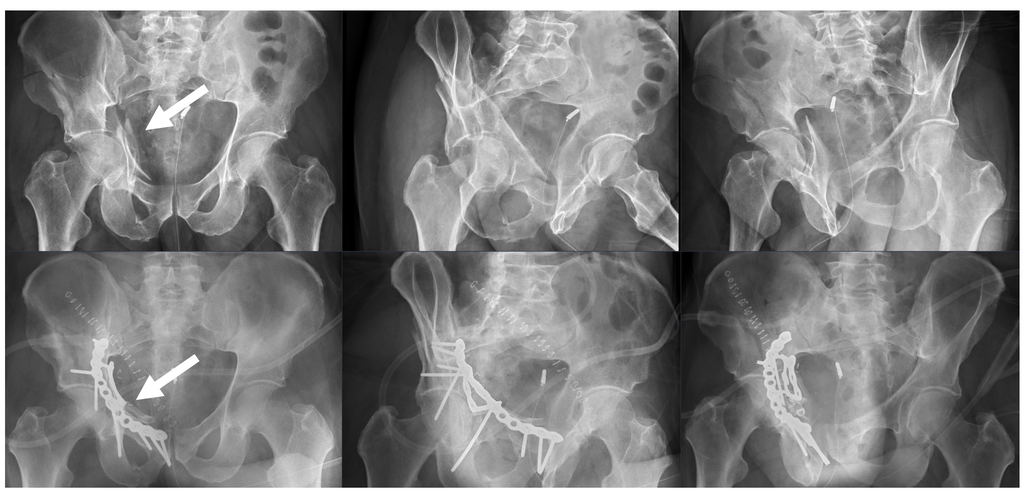

Figure 2: Preoperative (upper row) and postoperative (lower row) X-rays of the same patient (Acetabular fracture type incomplete both columns). Arrows: intraoperative view/CM location.

Conclusion

- Identified 81% prevalence of CM anastomosis, more in line with anatomical studies (33-83%) than intraoperative series (1-52%)
- Observed higher CM prevalence in females compared to males
- Noted one incidental and ten trauma-induced CM injuries, but no uncontrollable bleeding associated with this variant
- Despite high CM prevalence, when actively addressed and occluded in anterior approaches, it is not linked to bleeding events