www.americanjir.com

ScientificScholar® Knowledge is power
Publisher of Scientific Journals

American Journal of Interventional Radiology

Vascular Interventions *Case Report*

Corona mortis in the setting of pelvic trauma: Case series and review of the literature

Emily B. Sealy[1], Christine M. G. Schammel[2], Rakesh Varma[3], Aron Michael Devane[4]

[1]Department of Health Sciences, South Carolina School of Medicine Greenville, [2]Department of Pathology, Prisma Health Upstate, Greenville, [3]Department of Radiology, Heersink School of Medicine, Birmingham, [4]Department of Radiology, Prisma Health Upstate, Greenville, United States.

***Corresponding author:**
Christine M. G. Schammel,
Department of Pathology,
Prisma Health Upstate,
Greenville, United States.

christine.schammel@prismahealth.org

Received : 03 January 2023
Accepted : 21 February 2023
Published : 12 April 2023

DOI
10.25259/AJIR_1_2023

Quick Response Code:

ABSTRACT

Corona mortis is a variant vessel located posteriorly against the superior pubic ramus, "crowning" the pelvis; actual prevalence is unknown due to broad definitions: A connection between the obturator artery and an external iliac artery branch or the external iliac artery anastomosis, or any variant vessel behind the superior pubic ramus. Rapid identification and immediate treatment of injury to an arterial corona mortis resulting from pelvic trauma or pelvic surgeries are essential as hemorrhage or death may result. Interventional radiology can selectively target corona mortis and obstruct hemorrhage through catheter-guided embolization. We present four cases of corona mortis and pelvic trauma with successful embolization and include a comprehensive literature review to further educate regarding the morbidity and potential mortality associated with this important anatomic variant.

Keywords: Arterial corona mortis, Catheter embolization, Corona mortis, Variant pelvic vessel

INTRODUCTION

Corona mortis, or "crown of death," has been defined as a variant vessel that originates from the external iliac artery system and dives deep into the pelvis, crossing the superior pubic ramus, potentially creating an arterial or venous anastomosis with branches of the internal and external ipsilateral iliac vessels.[1] The connections between the obturator artery, typically an internal iliac artery branch, and an external iliac artery branch or the external iliac artery have prompted a more comprehensive definition of corona mortis that reflects the potential problem for surgeons in the retropubic region, and not simply describing the anatomy.[2] Thus, corona mortis can be defined as any vessel crossing the superior pubic ramus.[3]

Corona mortis is not typically taught during medical training, with most anatomy textbooks labeling corona mortis as "anomalous," "aberrant," or "accessory" despite published reports noting an arterial prevalence of 17–25% and a venous prevalence of 41.7–42%.[4,5] In addition, training often fails to emphasize the importance of identifying corona mortis, particularly given the location behind the pubic ramus that predisposes the vessel to injury in pelvic surgeries and trauma, a bleeding control challenge intraoperatively when a lacerated vessel spasms.[4] Injury to the arterial corona mortis is associated with severe adverse outcomes, resulting in rapid hemodynamic instability and death if left unrecognized.[6]

Catheter-guided embolization provides a minimally invasive alternative to rapidly achieve prompt hemostasis in cases of pelvic trauma, as it can selectively embolize a particular vessel

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, transform, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.
©2023 Published by Scientific Scholar on behalf of American Journal of Interventional Radiology

without exposing the patient to surgical risk.[7] Following Institutional Review Board approval utilizing universal consent, we outline four reports of pelvic trauma resulting in hemorrhage due to the presence of arterial corona mortis and successful catheter-guided embolization.

CASE REPORTS

Case 1

Following a motor vehicle collision, an 81-year-old male presented to the emergency department (ED). Contrast-

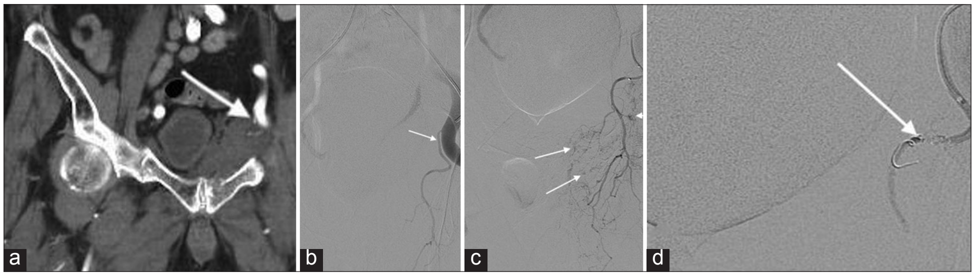

Figure 1: An 81-year-old male with bilateral fractures of the pubic rami (superior and inferior) and active contrast extravasation within the left gluteal musculature following a motor vehicle accident. (a) Contrast-enhanced coronal CT image of the pelvis demonstrating a small vessel arising from the left external iliac artery (white arrow). (b) Left external iliac angiogram confirming a corona mortis (white arrow) arising directly from the left external iliac artery separate from the inferior epigastric artery (black arrow). (c) Selective angiogram of corona mortis with a microcatheter showing multiple small foci of arterial contrast extravasation (white arrows). (d) Angiogram status post coil embolization (white arrow) of corona mortis with resultant hemostasis.

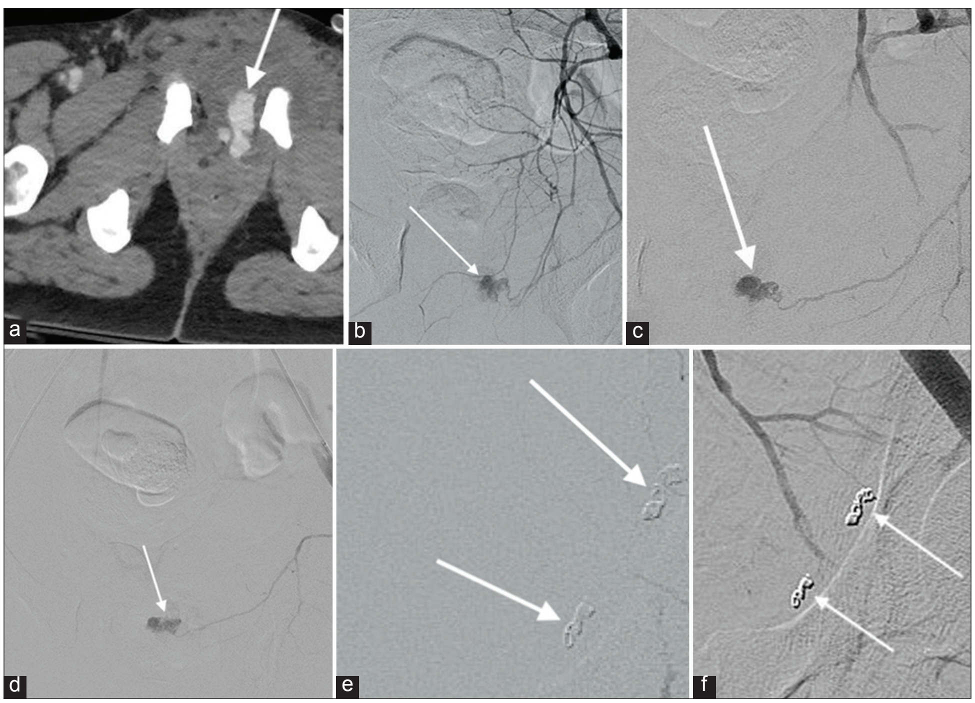

Figure 2: A 47-year-old male with an anterior-posterior compression III pelvic injury, sacroiliac joint widening, and active arterial contrast extravasation within the deep pelvis near the left pubic symphysis following a motorcycle accident. (a) Axial contrast-enhanced CT of the pelvis demonstrates active arterial extravasation of contrast (white arrow) anterior to a widened pubic symphysis. (b) Selective angiogram of the left internal iliac artery shows an active arterial bleed (white arrow) within the left deep pelvis due to reflux through the left external iliac artery. (c) Repeat right internal iliac artery angiogram after gelfoam embolization demonstrates bleeding (white arrow) arising from corona mortis arising from the right inferior epigastric artery (black arrow). (d) A 47-year-old male with an anterior-posterior compression III (APC) pelvic injury, sacroiliac joint widening, and active arterial contrast extravasation from the left internal iliac artery near the left pubic symphysis following a motorcycle accident. An angiogram of the left external iliac artery better demonstrates the bleed (white arrow) arising from corona mortis. (e) Post coil (white arrows) embolization of corona mortis showing no further hemorrhage. (f) Final angiogram of the right internal iliac artery demonstrating no further extravasation of contrast. Embolization coils are labeled with white arrows.

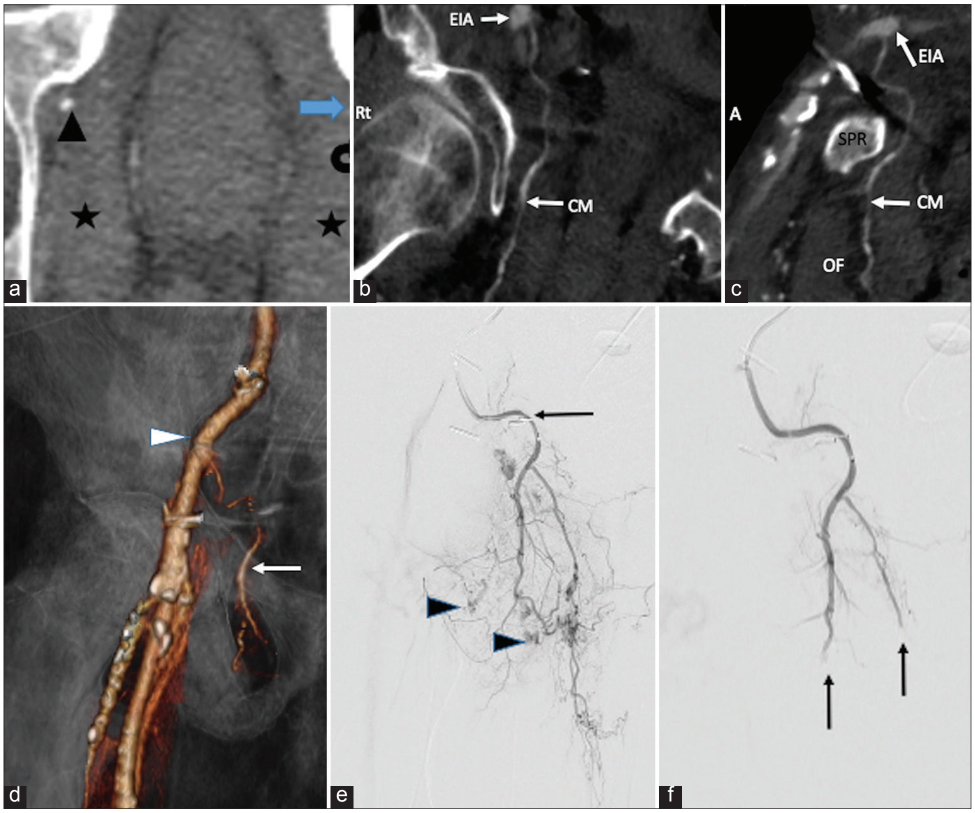

Figure 3: A 61-year-old male with multiple displaced pelvic fractures, bilateral pelvic hematomas, and multifocal blush on the right hemipelvis following a motor vehicle accident. (a) Right-sided corona mortis (arrowhead), the pubic branch of the inferior epigastric artery (blue arrow), obturator artery arising from the anterior division of the internal iliac artery (curved arrow), and lateral pelvic hematoma (star). (b) Oblique coronal and (c) oblique sagittal multiplanar reconstruction of the CTA images demonstrating the course of the right corona mortis (CM and arrow) originating from the external iliac artery (EIA and arrow), coursing behind the superior pubic ramus (SPR) and towards the obturator foramen (OF). (d) A volume-rendered CT pelvic angiogram shows the right obturator artery (arrow), that is, corona mortis arising from the right external iliac artery (arrowhead). (e) Selective angiogram through the right corona mortis (arrow) shows multiple areas of contrast extravasation in the region of the right obturator foramen (arrowheads). (f) Post-embolization images of the right corona mortis artery using gelfoam shows complete cessation of areas of extravasation (arrows).

enhanced computed tomography (CT) of the abdomen and pelvis revealed bilateral fractures of the pubic rami (superior and inferior); active contrast extravasation was present within the left gluteal musculature. A small abnormal branch of the left external iliac artery was noted [Figure 1a]. Emergent angiography was performed due to hypotension. The obturator artery was noted by angiogram to arise directly from the external iliac artery, extending into the deep pelvis, and creating corona mortis [Figure 1b]. Selective angiography of the obturator muscle bed further demonstrated active bleeding [Figure 1c]. Gelfoam (Pfizer, New York, NY) embolization was performed, followed by coil embolization (Concerto coils, Medtronic, Minneapolis, MN). Post-embolization angiogram confirmed hemostasis [Figure 1d]. Following fracture stabilization, the patient was discharged on hospital day 10.

Case 2

A 47-year-old male was admitted to the ED with injuries sustained in a motorcycle accident. Intravenous contrast-enhanced CT demonstrated an anterior-posterior compression III pelvic injury demonstrating sacroiliac joint widening; the left pelvis demonstrated contrast extravasation [Figure 2a]. Active arterial contrast extravasation was also noted by angiography from the left internal iliac artery near the left pubic symphysis [Figure 2b]. Embolization of the left internal iliac artery anterior division utilizing Gelfoam slurry was performed. Follow-up angiogram demonstrated active arterial extravasation from a corona mortis [Figure 2c], a branch of the left inferior epigastric artery originating from the left inferior epigastric artery in communication with the left internal iliac artery anterior division. Coil embolization (Concerto

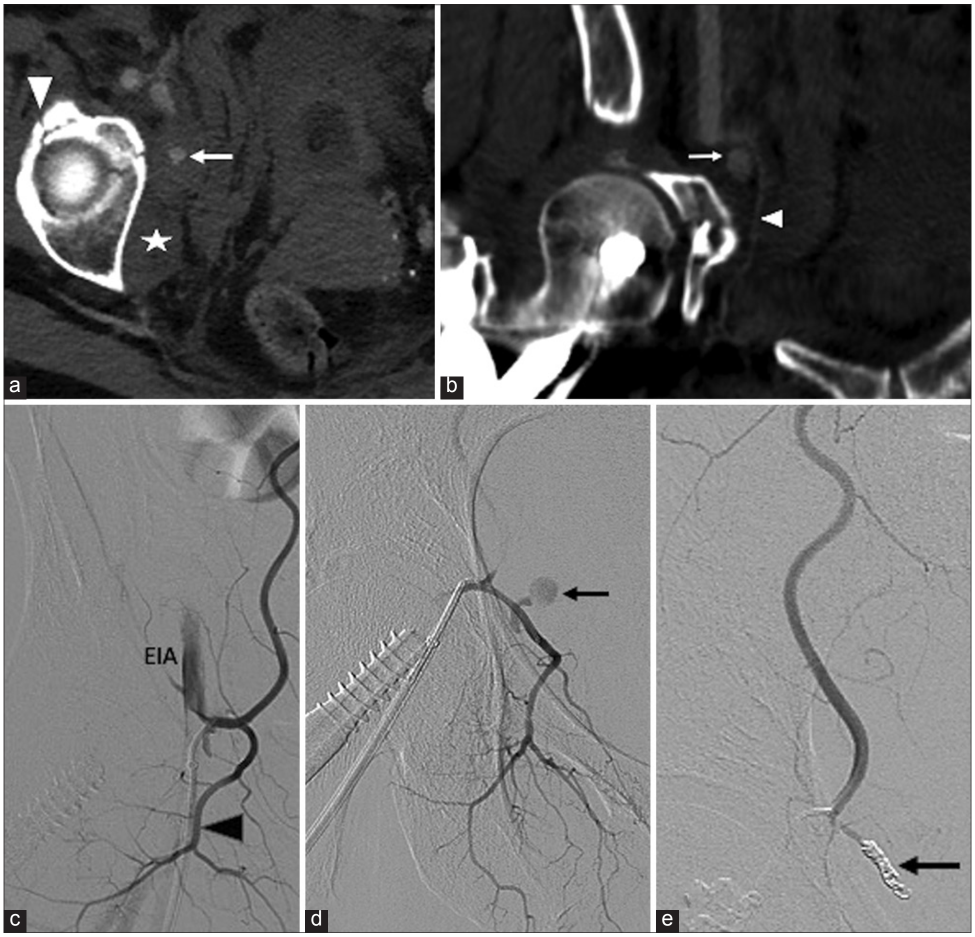

Figure 4: A 64-year-old female with a right acetabular fracture with the right pelvic sidewall hematoma and a pseudoaneurysm lateral to an aberrant right obturator artery after falling at home. (a) Contrast-enhanced axial CT image shows a 6mm pseudoaneurysm (arrow) within the right lateral pelvic sidewall, pelvic hematoma (star), and right acetabular fracture (arrowhead). (b) Curved coronal reconstruction contrast-enhanced CT image demonstrating the aberrant right obturator artery arising from the external iliac artery representing the corona mortis (arrowhead). (c) The aberrant right obturator artery arising from the external iliac artery (EIA), represents the corona mortis (arrowhead). Note the common origin of the corona mortis and inferior epigastric artery (IEA). (d) Super-selective catheterization of the corona mortis showing the distribution of vasculature around the obturator foramen and the pelvic pseudoaneurysm (arrow). (e) DSA images post-coil embolization of the corona mortis (arrow). Concerto coils can be seen.

coils, Medtronic, Minneapolis MN) of the corona mortis was performed; a follow-up angiogram demonstrated no further hemorrhage [Figures 2d-f]. His pelvic fractures were internally fixated and he was discharged 15 days post-embolization.

Case 3

A 61-year-old male presented to the ED with multiple pelvic fractures following a car accident. The patient presented as hemodynamically stable. Contrast-enhanced CT of the pelvis showed multiple displaced pelvic fractures, bilateral pelvic hematomas, and a right-sided corona mortis vessel [Figures 3a-c]. Angiography demonstrated multifocal blush on the right hemipelvis [Figure 3d]. The right corona mortis arising from the external iliac artery was readily identified, demonstrating active contrast extravasation on selective angiogram [Figure 3e]. The variant artery was successfully embolized with Gelfoam [Figure 3f]. The patient was discharged post-procedure on day 5.

Case 4

A 64-year-old female presented to the ED after falling at home. She was initially hemodynamically stable. Contrast-enhanced pelvic CT showed a right acetabular fracture with active extravasation and a pseudoaneurysm lateral to an aberrant right obturator artery [Figures 4a and 4b]; angiography was performed in the interventional radiology (IR) suite. Investigation of the right internal iliac artery demonstrated patency of the right internal iliac artery and branching vessels without evidence of active extravasation. An arteriogram of the right external iliac artery was

Table 1: Comprehensive literature review – Case series.

Study	Population	Type	Hemipelvises	Average age (range)	Gender	CMOR prevenance (%)	Distance from pubic symphysis (mm), (range)	Distance from lacunar ligament	Diameter (mm), (range)	Laterality
Teague, 1996[9]	USA	Cadaveric	79	71 (56–88)	55% M	43 Arterial, 59 Venous				
Tornetta, 1996[10]	USA	Cadaveric	50			84	62 (30–90)		(2–4)	
Missankov, 1996[11]	South Africa	Cadaveric	98	45–80	71.4% F	69 Arterial, 46 Venous				
Gilroy, 1997[12]	USA, China	Cadaveric	105			38 Arterial, 82 Venous (USA) 33 Arterial, 67 Venous (China)				USA arterial: Bilateral 20%, Unilateral 35%, Absent 45% China arterial: 17% Bilateral, 33% Unilateral, 50% Absent USA venous: Bilateral 75%, Unilateral 15%, Absent 10% China venous: 50% Bilateral, 33% Unilateral 17% Absent
De Kleuver, 1998[13]	Netherlands	Cadaveric	12		74.5% M	50				
Bereroglu, 2001[14]	Turkey	Cadaveric	14			86 Arterial, 100 Venous	40.4 (33.2–52.7) Arterial or Venous		0.98 (0.6–1.2) Arterial, 3.3 (2.2–4.9) Venous	
Sarikcioglu, 2003[8]	Turkey	Cadaveric	54		92.5% M	0 Arterial, 20.37 Venous	39.79 (28.37–51.21) Arterial or Venous	12.18 (8.63–15.73) Arterial or Venous		
Okcu et al., 2004[1]	Turkey	Cadaveric	150	40 (16–78)	77.3% M	19 Arterial, 52 Venous, 9 Mixed	64 (45–90) Arterial, 56 (37–80) Venous			28% Bilateral
Ersoy, 2004[15]	Turkey	Cadaveric	10	61.4 (52–71)	100% F	100 Venous				
Drewes, 2005	USA	Cadaveric	30	77 (46–95)	100% F	33 Arterial, 60 Venous	54			12% Bil arterial 33% Bil venous
Pungpapong, 2005[17]	Thailand	Cadaveric	66		54.5% F	13.6 Arterial, 77.3 Venous	52.8			
Darmanis et al., 2007[2]	UK	Cadaveric	80		67.5% M	36 Arterial, 60 Venous, 27.5 Mixed	71 (42–88) Arterial, 65 (39–82) Venous	14 (11–16)	2.6 (1.6–3.5)	
Namking, 2007[18]	Thailand	Cadaveric	204	20–95	54.4% M	22.5 Arterial, 70.6 Venous, 17.2 Mixed				Arterial: Right 20.8%, Left 24.3% Venous: Right 70.3%, Left 70.9% Mixed: Right 14.9%, Left 19.4%
Pathi, 2009[19]	USA	Cadaveric	24	79 (65–96)	100% F	25 Arterial, 67 Venous				
Mahato, 2009[20]	India	Cadaveric	50	40–60	88% M	40 Venous, 22 Mixed				Venous: Right 36%, Left 43% Mixed: Right 23%, Left 21%
Rusu et al., 2010[3]	Romania	Cadaveric	40		60% M	25 Arterial, 15 Venous, 40 Mixed				
Kacra, 2011[21]	Turkey	Cadaveric	10			20 Venous, 20 Mixed				
Stavropoulou -Deli, 2013[22]	Greece	Cadaveric	70		100% F	11.43 Arterial, 14.29 Venous	52.4 (40–75) Arterial, 46.7 (35–55) Venous		3 Arterial, 3.1 Venous	Arterial: 37.5% Right, 12.5% Left, 50% Bilateral Venous: 20% Left, 80% Bilateral

(Contd....)

Table 1: *(Continued).*

Study	Population	Type	Hemipelvises	Average age (range)	Gender	CMOR prevenance (%)	Distance from pubic symphysis (mm), (range)	Distance from lacunar ligament	Diameter (mm), (range)	Laterality
Bible, 2014[23]	USA	Cadaveric	10			60 Arterial, 80 Venous				
Nayak, 2016[24]	S India	Cadaveric	73	50–80	94.5% M	51 Venous				
Tajra, 2016[25]	Brazil	Cadaveric	24		66.7% M	22.72 Arterial				Arterial: Right 27.27%, Left 18.18%
Al Talawah, 2016[26]	Austria	Cadaveric	208		73% M	12 Arterial				
Pillay, 2017[27]	India	Cadaveric	67		63% M	12.5 Arterial, 60.7 Venous, 26.78 Mixed	54.5 (38–79)			20.8% Bilateral
Leite, 2017[28]	Brazil	Cadaveric	60		83.3% M	45 Arterial	49.62		2.66	
Zhou, 2017[29]	China	Cadaveric	20	38.3 (21–60)	65.8% M	15% Arterial, 55% Venous	65.30			
Kashyap, 2019[30]	N India	Cadaveric	24	68 (54–82)	91.7% M	8.3 Arterial, 58.3 Venous, 8.3 Mixed	41 (35–70) Venous		83% were<4 mm	20.8% Right, 37.5% Left, 41.7% Bilateral
Cardeiro, 2019[31]	Brazil	Cadaveric	80		67.5% M	22.5 Arterial				
Dias, 2019[32]	India	Cadaveric	50	44.8	88% M	4 Arterial, 40 Venous				
Du, 2020[33]	China	Cadaveric	16		62.5% M	18.75 Arterial, 43.75 Venous, 12.5 Mixed	59.0 (53.9–65.2)		2.5 (1.6–3.5)	
Kati, 2021[34]	Turkey	Cadaveric	12	70.8 (59–80)	66.7% M	83 Arterial or Venous	47.7 (43–55)			
Wada, 2021[35]	Japan	Cadaveric	122	85 (65–106)	52.5% F	28.3 Arterial, 76.1 Venous	Anteroposterior view: 47.7 (45.9–49.6), Inlet view: 59.4 (57.3–61.5)			
Karakurt, 2002[36]	Turkey	Angiography (prospective)	98	55 (23–73)	60.2% M	28.5 Arterial	33.4 (21.4–41)			
Smith, 2009[37]	USA	CT (prospective)	100	26 (18–87)	54% F	29 Arterial	56 (41–72)		2.5 mm (1.6–3.5)	Arterial: 28% Left, 30% Right, 22% Bilateral
Requarth and Miller, 2011[38]	USA	Angiography (Retrospective)	243		50.6% F	Arterial 38.4% of all hemipelvises, 55.1% in all pts				Arterial: 37.7% Right, 39.1% Left 21.7% Bilateral
Castellani, 2016[39]	Italy	CT (Prospective)	94		100% F	27.7				69% Bilateral
Wada, 2017[30]	Japan	CTA (Retrospective)	196	66 (54–78)	63.3% M	14.3 Arterial				
Han, 2017[2]	China	CTA (Prospective)	660	43 (11–72)	100% F	14.1% Arterial, 51.1% Venous	59.6 (43–82) Arterial, 66.87 (41–119) Venous		2.56 Arterial, 3.63 Venous	Arterial: 6.06% Bilateral, venous: 34.24% Bilateral
Steinberg, 2017[42]	Isreal	CTA (Retrospective)	200	67 (19–96)	66% M	33 Arterial	55.2 (45–72) Right, 57.2 (35–71) Left		Right: 2.4 (1.4–3.7), Left: 2.24 (1.6–3.5)	Arterial: 45.5% Left, 54.5% Right, 45.5% Bilateral
Duenas-Garcia, 2018[43]	USA	3D-Imaging from CTA	87	66.9	100% F	27.9 Arterial	51.3 (37–59) Right, 52.7 (36–58) Left			

(Contd....)

Table 1: *(Continued)*.

Study	Population	Type	Hemipelvises	Average age (range)	Gender	CMOR prevenance (%)	Distance from pubic symphysis (mm), (range)	Distance from lacunar ligament	Diameter (mm), (range)	Laterality
Perandini, 2018[44]	Italy	CTA (Retrospective)	300	73 (22–95)	74% M	30 Arterial	50 (42–72)		1.7 (0.8–3.2)	Arterial: 45.4% Left, 55.6% Right, 35.6% Unilateral 64.6% bilateral
Zlotorowicz, 2018[45]	Poland	CTA	100	46.7 (14–80)	72% F	33 Arterial				Arterial: 56% Right, 44% Left, 52% Bilateral
Bhoil, 2020[46]	India	CTA (Prospective)	200	40 (22–74)	67% M	14 Arterial	54.55 (Range 42–68) Right, 54.26 (Range 40–66) Left		Right: 2.6 (1.7–3.0), Left: 2.3 (1.6–3.2)	20% Unilateral 4% Bilateral
Teague, 1996[9]	USA	Intraoperative (Prospective)	38	31 (13–67)	78.9% M	37				
Bereroglu, 2001[14]	Turkey	Intraoperative	36			86 Arterial, 94 Venous			Arterial<1 mm	
Lau, 2003[47]	Hong Kong, China	Intraoperative (Prospective)	141	64 (49–79)	96.7% M	22 Arterial, 27 Venous				Arterial: 41.9% Left, 58.1% Right Venous: 52.6% Left, 47.4% Right
Darmanis et al., 2007[2]	UK	Intraoperative (Retrospective)	492	34 (7–80)	71.5% M	0.01 Arterial Or Venous				
Pellegrino, 2014[48]	Italy	Intraoperative	50	59 (46–68)	100% F	8 Arterial, 48 Venous, 23 Mixed				Right 60%, Left 28%, Bilateral 12%
Jensen, 2015[49]	Switzerland	Intraoperative (Retrospective)	130	51 (38–70)	66.2% M	41.5				
Ates, 2016[50]	Turkey	Intraoperative (Retrospective)	391	46 (37.4–54.6)	83.5% M	28.4 Arterial			22.8% <2 mm, 5.5% >2 mm	
Kinaci, 2016[51]	Turkey	Intraoperative	475	46 (36.9–55.1)	84% M	31.3 Arterial, 5.8 Venous			25.05% <2 mm, 6.32% >2 mm	
Guzel, 2020[52]	Turkey	Intraoperative	34	43.5 (21–65)	77.4% M	23 Arterial, 45 Venous, 26 Mixed	35.9 (21.6–48.7)			

Greyed boxes indicate variables that the study did not address. CTA: Computed tomography angiography; Table 1 references detailed in the Supplemental material.

Table 2: Comprehensive literature review – Individual cases.

Case	Imaging	Age/Gender	Hemodynamics	Clinical Situation	Transfusion Requirement	Laterality	Type	Rusu classification	Tx	Distance from pubic symphysis (mm)	Diameter (mm)
Meyers, 2000[53]	Angiography	86/F 43/M	Initially stable, rapid decompensation while in ED (BP 70/40, HR 100s) BP 109/80, HR 126	Pubic rami fractures s/p 4-ft fall Pubic rami fractures s/p 20-ft fall	7 U blood 10 U blood	Left Right	Pubic branch of the inferior epigastric artery		Embolization		
Daeubler, 2003[54]	CT with contrast/ Angiography	46/M	Initial BP was 133/107. Decompensated while in CT with BP of 100/65, pulse of 120 bpm.	Superior and inferior pubic ramus fracture secondary to car versus cyclist in which the pt was the cyclist.	6 U whole blood, 8 U PRBCs, 2 U FFP	Left	Obturator artery originating from inferior epigastric artery	I2	Embolization with microparticles and 0.018 in coils		
Macdonald, 2006[55]	Angiography	71/F	Initially stable, developed hypotension and tachycardia after admission. Hemoglobin decreased from 13.2 to 6.3 g/dL	Superior ramus fracture s/p fall	10 U PRBCs, 3 U FFP	Left	Pubic branch of left inferior epigastric artery		Embolization with coils		
Henning, 2007[56]	CT with contrast/ Angiography	81/F	Became hemodynamically unstable during overnight stay with hemoglobin decreasing from 13.3 to 8.1 g/dL and BP of 92/54.	Superior and inferior left pubic ramus fracture after fall.	7 U PRBC, 4 U FFP	Left	Distal branch of interior epigastric artery		Embolization with microparticles and 2 mm in coils		
Smith, 2009[57]	CT with contrast/ Angiography	19/M	Stable on arrival but patient became tachycardic in CT scanner and interval hemoglobin showed decrease from 13.1 to 11.3 g/dL. Post procedural hemoglobin was 9 g/dL.	Fractures of left superior pubic ramus, left ischiopubic ramus, and first sacral segment after high speed MVA.	4 U of PRBCs	Left	Obturator artery originating from inferior epigastric artery	I2	Embolized with alcohol particles and and gelgoam slurry		
Larsson, 2010[58]	Intraoperative	53/F	Stable, however, hemoglobin decreased from 13.0 to 12.2 g/dL postoperatively	Intraabdominal bleeding postop TVT-Secur procedure		Left			Surgical ligation		
Rehder, 2010[59]	CT	46/F	Stable	Retropubic hematoma following invasive MUS for stress urinary incontinence		Left	Anastomoses between obturator and inferior epigastric artery	I3	Conservative management		
Dixon, 2011[0]	CTA	70/F	Stable	Type II endoleak found on 10-year follow up s/p open surgical aortobiilac graft placement for isolated internal iliac artery aneurysm		Right	Anastomoses between obturator and inferior epigastric artery	I3	Embolization with three 6 mm Tornado coils, 4mL of thrombin, and Glubran 2		
Ferrada, 2011[1]	CT with contrast/ Angiography	72/M	Initially stable with BP of 172/83 but later decompensated to systolic of 100 s	Fractures to bilateral inferior pelvic rami after MVC		Bilateral	Obturator arteries arising from inferior epigastric arteries bilaterally	I2	Embolization		

(Contd....)

Table 2: *(Continued)*..

Case	Imaging	Age/Gender	Hemodynamics	Clinical Situation	Transfusion Requirement	Laterality	Type	Rusu classification	Tx	Distance from pubic symphysis (mm)	Diameter (mm)
Theodorides *et al*., 2011[6]	Angiography	78/F	Initially stable, became unstable within 2 h	Superior pubic ramus fracture s/p fall	8 U blood, 4 U FFP	Right			Embolization with gelfoam		
Garrido-Gómez, 2012[62]	Angiography	70/F	Initially stable and discharged home. Returned 72 h later with BP 95/64, HR 140	Iliopubic rami fracture and a nondisplaced right ischiopubic rami fracture s/p fall	6 U	Left	distal portion of a small branch of the obturator artery		Embolization		
Kong and Tsai, 2012[63]	CT with contrast/ Angiography	58/F	Initially stable, became hypotensive (77/48) within 2 h	Simple pubic ramus fracture s/p MVC	4 U PRBCs, 4 U FFP	Right	Pubic branch of right inferior epigastric artery		Embolization		
Pua, 2012[64]	CT/ Angiography	55/M		Right superior and inferior pubic rami fracture and diastasis of the right SI joint s/p MVC		Bilateral	Bilateral obturator arteries arising from CM as a branch distal to the right inferior epigastric	I2	Embolization with gelatin sponge slurry and coil		
Ten Broek, 2014[65]	Angiography	79/F	Initially stable, became hypotensive (82/43) the following day Hemoglobin 5.5 mmol/L	Superior pubic rami fracture s/p fall	2 U PRBCs	Right	Branch of internal iliac artery communicating with inferior epigastric artery	Likely I3	Embolization		
Ramser, 2014[66]	Intraoperative	97/F	Stable	Incidental finding during laparoscopic obturator hernia repair		Right			None required		
Kandhari, 2015[67]	CTA	40/F	Stable	Patent CMOR preserved blood flow to lower extremity of a patient with blocked external iliac artery after failed fixation of fractured acetabulum causing avascular necrosis of the hip		Left	Anastomosis between obturator and external iliac artery		None		
Cerda, 2016[68]	Cadaver	M		Incidental finding during routine dissection		Bilateral	Obturator artery originating from inferior epigastric artery	Likely I2		Left: 47.24, Right: 49.23	Left: 2.77, Right: 2.8
Pinochet, 2016[69]	Cadaveric	81/F		Cadaveric study		Bilateral	Left: obturator vein draining into inferior epigastric vein, Right: External iliac vein into the obturator canal	Left: Type II2, Right: unclassified		65 Left, 67 Right	8 Left, 3 Right

(Contd....)

Table 2: *(Continued)*..

Case	Imaging	Age/Gender	Hemodynamics	Clinical Situation	Transfusion Requirement	Laterality	Type	Rusu classification	Tx	Distance from pubic symphysis (mm)	Diameter (mm)
Xu, 2018[70]	CT with contrast/ Angiography	88/M	When transferred from outside hospital, pt became diaphoretic, tachycardic and hypotensive with BP of 81/56.	Superior pubic ramus fracture following a fall.	16 U PRBCs, 3.5 L FFP	Right	Distal branch of right external iliac artery		Embolization with balloon-assisted coiling		
Babinski, 2018[71]	Cadaveric	M		Incidental finding during dissection		Right	Venous and arterial anastomoses between inferior epigastric and obturator vessels	I3 and II3			3 mm
Yasuda, 2018[72]	Intraoperative	66/M	On POD 1, BP 79/54 and hemoglobin decreased from 14.7 to 12.7 g/dL. POD 2, BP was 9.6 g/dL.	Corona mortis vein was injured by the tip of the electric cautery during transabdominal preperitoneal laparoscopic hernioplasty.	Unknown amount	Left	Vein across Cooper's ligament		Exploratory laparoscopy with evacuation of hematoma and application of surgical clips		
Herskowitz, 2019[73]	CTA/ Angiography	50/M	Initial BP 91/58, hemoglobin decreased fromo 13.2 to 7.3 g/dL on repeat labs.	Pelvic fracture (diastasis of the symphysis pubis, avulsion fracture of the medial aspect of the left superior pubic ramus, separation of the left sacroiliac joint) secondary to MVA.	6 U PRBC, 5 U FFP, 1 pack platelets	Bilateral	Right: branch off of inferior epigastric artery, Left: aberrant pubic branch off external iliac arery	Right: I2, Left: unclassified	Embolization with 0.018 coils and gelfoam slurry		
Han, 2020[74]	CT with contrast/ Angiography	71/M	Stable but was readmitted with episodes of near-syncope, abdominal distension and anemia on POD 6	CMOR pseudoaneurysm in causing delayed intermittent hemoperitoneum after robotic radical prostatectomy		Left			Embolization		
Pisanno, 2021[75]	CT with contrast	60/M		CMOR pseudoaneurysm 12 weeks after RALP		Left	Branch of external iliac artery which gave origin to inferior epigastric artery, pseudoaneurysm cavity, and obturator artery.		Embolization		

Greyed boxes indicate variables that the study did not address. POD: Post-operative day. CTA: Computed tomography, Computed tomography angiography, RALP: Robot-assisted laparoscopic prostatectomy, U: Units, ED: Emergency Department; BP: Blood Pressure; HR: Heart Rate; PRBC: Packed Red Blood Cells; FFP: Fresh Frozen Plasma; MVA: Motor Vehicle Accident; MCV: Motor Vehicle Collision; TVT: Tension Free Vaginal Tape; MUS: Muscuskeletal Ultrasound; SI: sacroiliac; s/p: status-post; CMOR: Corona Mortis; CM: Corona Mortis; Tx: Therapy. Supplementary Table 1 references in Supplementary Material.

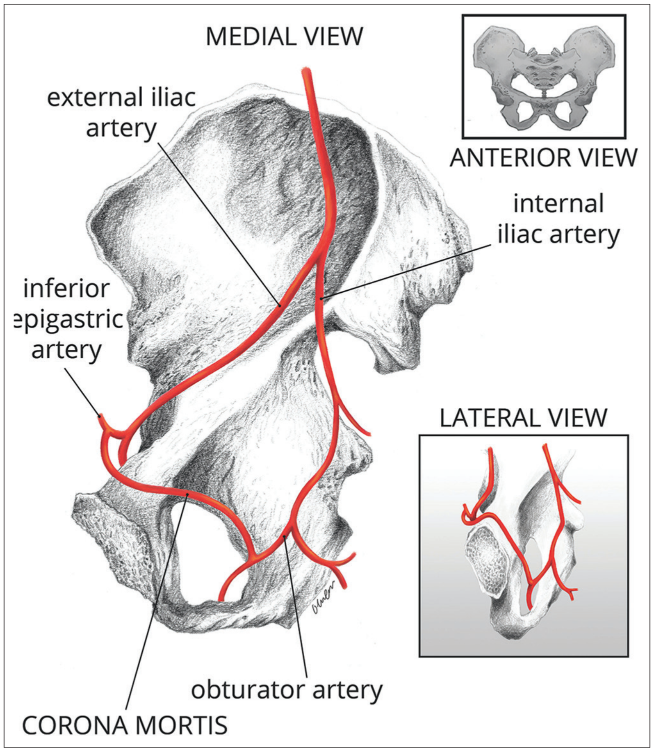

Figure 5: Illustration. An illustration representing the two variants of corona mortis noted in our case series. In two of the four cases, the corona mortis was found as a branch off of the external iliac artery (Rusu type I.1). In two cases the corona mortis was identified as a branch of the inferior epigastric artery, which communicated with the anterior division of the internal iliac artery (similar to Rusu type I.2).

performed, revealing a slight blush of contrast from an aberrant right obturator artery. This artery originated from the mid-right external iliac artery and shared a common trunk with the inferior epigastric artery [Figure 4c]. It then traveled over the superior pubic ramus before entering the obturator foramen, forming a corona mortis [Figure 4d]. Embolization of the corona mortis was then performed using Concerto detachable coils (Medtronic, Minneapolis, MN) with no further evidence of active bleeding or pseudoaneurysm [Figure 4e]. The patient was discharged on post-procedure day 7.

DISCUSSION

Management of pelvic trauma typically includes placement of a pelvic binder, with CT on the vast majority of patients and FAST for unstable patients. Patients positive for FAST are treated surgically with pre-peritoneal packing; if FAST is negative, IR is typically consulted for angioembolization. Corona mortis is defined as an "anastomosis between the obturator and the external iliac or inferior epigastric artery or vein" and any other vessels, posing a risk of hemorrhage to surgeons operating in the space posterior to the superior pubic ramus.[2,3,8] Corona mortis is classified by the Rusu *et al*. system into three main categories (I. Arterial, II. Venous, III. combined), with further classification into subcategories based on morphological patterns.[3] In our series, Cases 1 and 4 could be classified as the most common form, Rusu *et al*. type I.1 variant, while Cases 2 and 4 could be classified as Rusu *et al*. type I.2.

Various definitions have resulted in discrepancies in the documented prevalence of corona mortis. A comprehensive literature search identified corona mortis cases from cadaveric, intraoperative, radiologic, and individual case studies [Table 1[1-3,8-52] and 2[6,53-75] Figure 5]. Arterial corona mortis in cadaveric and intraoperative studies reported the widest range, with averages of 30.13% and 35.14%, respectively, possibly related to intraoperative spasm of a lacerated corona mortis, making definitive identification of corona mortis challenging.[8] Radiologic studies reported a lower prevalence, with a mean of 26.2%. Interestingly, two separate meta-analyses reported arterial corona mortis prevalence as 17% and 25%, respectively, which is much lower than our evaluation of the literature (8.3–86%; [Tables 1 and 2]) Venous corona mortis prevalence was reported to be higher than arterial corona mortis, at approximately 50% overall.[4,5] Arterial corona mortis poses the greatest risk for surgeons and interventionalists in the setting of pelvic trauma, suggesting that corona mortis is not uncommon, and thorough mapping of the vasculature is essential.

An isolated pubic ramus fracture can often be treated with conservative management; however, in cases involving a corona mortis, patients are at risk of delayed hemorrhage.[63] These vessels are deep within the pelvis and are often challenging to identify during surgery due to spasm.[8] It is not surprising that, of the traumas that documented fracture of the pubic rami (n = 13) and of 12 traumas that mentioned hemodynamic status, all of the patients exhibited delayed hemorrhage [Table 2]. Interestingly, of the four patients in which corona mortis was identified intraoperatively, 50% were hemodynamically stable, and 50% had delayed hemorrhage. The three corona mortis identified post-operatively (n = 3) had only one (33%) with delayed hemorrhage, suggesting more success in corona management during non-trauma operative procedures. Awareness and early recognition of the corona mortis variant by radiologists in cases of trauma are vital.

The sensitivity and specificity of CT angiography (CTA) in identifying corona mortis in non-pelvic fracture patients are 90% and 100%, respectively. This vessel could be missed on initial CT without angiography as the sensitivity and specificity decrease to 63.6% and 92.3% in the setting of pelvic fracture.[38] However, an evaluation of the case reports [Table 2] indicated that all trauma cases utilized CTA successfully to identify corona mortis. More importantly, all of the cases were successfully managed using embolization.

CONCLUSION

In the setting of pelvic fracture, it is essential to identify corona mortis as an injury may result in a life-threatening hemorrhage due to its position over the superior pubic ramus. Thus, careful radiological evaluation of corona mortis is key to preventing delayed life-threatening hemorrhage, as this entity is more common than previously thought. The interventionist needs to focus on the external iliac artery during catheter angiography in all cases of pelvic trauma, as the data suggest that the obturator artery may arise from that location in greater than 25% of cases.

In the setting of pelvic injury or pelvic surgery, catheter-guided embolization provides quick and successful management of hemorrhage.[7]

Acknowledgments

Olivia Corso developed the illustration. These data were presented at the 17th Annual SC Upstate Research Symposium (pg 197–200) and at the 2022 ARRS virtual meeting May 1–5, 2022.

Declaration of patient consent

Institutional Review Board (IRB) permission obtained for the study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Okcu G, Erkan S, Yercan HS, Ozic U. The incidence and location of corona mortis: A study on 75 cadavers. Acta Orthop Scand 2004;75:53-5.
2. Darmanis S, Lewis A, Mansoor A, Bircher M. Corona mortis: An anatomical study with clinical implications in approaches to the pelvis and acetabulum. Clin Anat 2007;20:433-9.
3. Rusu MC, Cergan R, Motoc AG, Folescu R, Pop E. Anatomical considerations on the corona mortis. Surg Radiol Anat 2010;32:17-24.
4. Sanna B, Henry BM, Vikse J, Skinningsrud B, Pękala JR, Walocha JA, et al. The prevalence and morphology of the corona mortis (Crown of death): A meta-analysis with implications in abdominal wall and pelvic surgery. Injury. 2018;49:302-8.
5. Noussios G, Galanis N, Chatzis I, Konstantinidis S, Filo E, Karavasilis G, et al. The Anatomical Characteristics of Corona Mortis: A Systematic Review of the Literature and Its Clinical Importance in Hernia Repair. J Clin Med Res. 2020;12:108-14.
6. Theodorides AA, Morgan BW, Simmons D. Haemodynamic instability resulting from a low energy pubic ramus fracture in a 78-year-old woman. A case report and review of the literature. Injury 2011;42:722-4.
7. Weber CD, Herren C, Dienstknecht T, Hildebrand F, Keil S, Pape HC, et al. Management of Life-Threatening Arterial Hemorrhage Following a Fragility Fracture of the Pelvis in the Anticoagulated Patient: Case Report and Review of the Literature. Geriatr Orthop Surg Rehabil. 2016;7:163-7.
8. Sarikcioglu L, Sindel M, Akyildiz F, Gur S. Anastomotic vessels in the retropubic region: Corona mortis. Folia Morphol (Warsz) 2003;62:179-82.
9. Teague DC, Graney DO, Routt ML Jr. Retropubic vascular hazards of the ilioinguinal exposure: A cadaveric and clinical study. J Orthop Trauma 1996;10:156-9.
10. Tornetta P, Hockwald N, Levine R. Corona mortis. Incidence and location. Clin Orthop Relat Res 1996;329:97-101.
11. Missankov AA, Asvat R, Maoba KI. Variations of the pubic vascular anastomoses in black South Africans. Acta Anat (Basel) 1996;155:212-4.
12. Gilroy AM, Hermey DC, DiBenedetto LM. Variability of the obturator vessels. Clin Anat 1997;10:328-32.
13. de Kleuver M, Kooijman MA, Kauer JM, Veth RP. Pelvic osteotomies: Anatomic pitfalls at the pubic bone. A cadaver study. Arch Orthop Trauma Surg 1998;117:270-2.
14. Berberoğlu M, Uz A, Ozmen MM, Bozkurt MC, Erkuran C, Taner S, *et al*. Corona mortis: An anatomic study in seven cadavers and an endoscopic study in 28 patients. Surg Endosc 2001;15:72-5.
15. Ersoy M, Sagsoz N, Bozkurt MC, Apaydin N, Elhan A, Tekdemir I. Important anatomical structures used in paravaginal defect repair: Cadaveric study. Eur J Obstetr Gynecol Repro Biol 2004;112:206-13.
16. Drewes PG, Marinis SI, Schaffer JI. Vascular anatomy over the superior pubic rami in female cadavers. Am J Obstet Gynecol 2005;193:2165-8.
17. Pungpapong SU, Thum-umnauysuk S. Incidence of corona mortis: Preperitoneal anatomy for laparoscopic hernia repair. J Med Assoc Thai 2005;88:S51-3.
18. Namking M, Woraputtaporn W, Buranarugsa M. Variation in origin of the obturator artery and corona mortis in Thai. Siriraj Med J 2007;59:12-5.
19. Pathi SD, Castellanos ME, Corton MM. Variability of the retropubic space anatomy in female cadavers. Am J Obstet Gynecol 2009;201:524.E1-5.
20. Mahato NK. Retropubic vascular anomalies: A study of abnormal obturator vessels. Eur J Anat 2009;13:121-6.
21. Kacra BK, Arazi M, Cicekcibasi AE, Büyükmumcu M, Demirci S. Modified medial Stoppa approach for acetabular fractures: An anatomic study. J Trauma 2011;71:1340-4.
22. Stavropoulou-Deli A, Anagnostopoulou S. Corona mortis:

Anatomical data and clinical considerations. Aust N Z J Obstet Gynaecol 2013;53:283-6.
23. Bible JE, Choxi AA, Kadakia RJ, Evans JM, Mir HR. Quantification of bony pelvic exposure through the modified Stoppa approach. J Orthop Trauma 2014;28:320-3.
24. Nayak SB, Deepthinath R, Prasad AM, Shetty SD, Aithal AP. A South Indian cadaveric study on obturator neurovascular bundle with a special emphasis on high prevalence of 'venous corona mortis'. Injury 2016;47:1452-5.
25. Tajra J, Lima C, Pires F, Sales L, Junqueira D, Mauro E. Variability of the obturator artery with its surgical implications. J Morphol Sci 2016;33:96-8.
26. Al Talalwah W. A new concept and classification of corona mortis and its clinical significance. Chin J Traumatol 2016;19:251-4.
27. Pillay M, Sukumaran T, Mayilswanny M. Anatomical considerations on surgical implications of corona mortis: An Indian study. IJAE 2017;122:127-36.
28. Leite TF, Pires LA, Goke K, Silva JG, Chagas CA. Corona Mortis: Descrição anatômica e cirúrgica em 60 hemipelvis cadavéricas. Rev Col Bras Cir 2017;44:553-9.
29. Zhou HY, Yu BQ, Zhang CS, Huang HL. An anatomical research of the anterior pelvic surgical approach and its clinical application in the treatment of pelvic and acetabular fractures. Int J Clin Exp Med 2017;10:1602-9.
30. Kashyap S, Diwan Y, Mahajan S, Diwan D, Lal M, Chauhan R. The majority of corona mortis are small calibre venous blood vessels: A cadaveric study of North Indians. Hip Pelvis 2019;31:40-7.
31. da Fonseca e Silva da Costa Cordeiro RC, Da Silva DA, Duro GM, Da Silva Pereira R, Pezzi LH. The presence of a variant obturator artery: The corona mortis. FASEB J 2019;33:616.9.
32. Dias MC, Patil RT. Anomalous origin of the obturator artery in a Goan population: A study linked with hernia reduction surgery. J Anat Soc India 2019;68:105-9.
33. Du MM, Wang AG, Shi XH, Zhao B, Liu M. Safety precautions for the corona mortis using minimally invasive ilioinguinal approach in treatment of anterior pelvic ring fracture. Orthop Surg 2020;12:957-63.
34. Kati YA, Kose O, Acar B, Turan A, Ozturk S, Sindel M. Risk of injury to the neurovascular structures in the pararectus approach used in acetabular fractures: A cadaver study. J Orthop Trauma 2021;35:e13-7.
35. Wada T, Itoigawa Y, Wakejima T, Koga A, Ichimura K, Maruyama Y, *et al*. Anatomical position of the corona mortis relative to the anteroposterior and inlet views. Eur J Orthop Surg Traumatol 2022;32:341-5.
36. Karakurt L, Karaca I, Yilmaz E, Burma O, Serin E. Corona mortis: Incidence and location. Arch Orthop Trauma Surg 2002;122:163-4.
37. Smith JC, Gregorius JC, Breazeale BH, Watkins GE. The corona mortis, a frequent vascular variant susceptible to blunt pelvic trauma: Identification at routine multidetector CT. J Vasc Interv Radiol 2009;20:455-60.
38. Requarth JA, Miller PR. Aberrant obturator artery is a common arterial variant that may be a source of unidentified hemorrhage in pelvic fracture patients. J Trauma 2011;70:366-72.
39. Castellani D, Saldutto P, Galica V, Masciovecchio S, Galatioto GP, Vicentini C. Transobturator surgery in presence of corona mortis: A study in 13 women. Urologia 2016;83:200-3.
40. Wada K, Goto T, Tezuka F, Tamaki S, Hamada D, Tsutsui T, *et al*. Variations in the obturator artery around the obturator foramen assessed by three-dimensional computed tomographic angiography and prevention of vascular-related complications in rotational acetabular osteotomy. IntOrthop 2017;41:133-9.
41. Han Y, Liu P, Chen C, Duan H, Chen L, Xu Y, *et al*. A digital anatomical study of the corona mortis in females. Minim Invasive Ther Allied Technol 2017;26:111-8.
42. Steinberg EL, Ben-Tov T, Aviram G, Steinberg Y, Rath E, Rosen G. Corona mortis anastomosis: A three-dimensional computerized tomographic angiographic study. Emerg Radiol 2017;24:519-23.
43. Dueñas-Garcia OF, Kim Y, Leung K, Flynn MK. Vascular anatomical relationships of the retropubic space and the sacrospinous ligament, using three-dimensional imaging. Int Urogynecol J 2017;28:1177-82.
44. Perandini S, Perandini A, Puntel G, Puppini G, Montemezzi S. Corona mortis variant of the obturator artery: A systematic study of 300 hemipelvises by means of computed tomography angiography. Pol J Radiol 2018;83:e519-23.
45. Zlotorowicz M, Czubak-Wrzosek M, Wrzosek P, Czubak J. The origin of the medial femoral circumflex artery, lateral femoral circumflex artery and obturator artery. Surg Radiol Anat 2018;40:515-20.
46. Bhoil R, Aggarwal N, Aggarwal V, Surya M, Sharma S, Ahluwalia A, *et al*. "Crown of Death"; Corona mortis, a common vascular variant in pelvis: Identification at routine 64-Slice CT-angiography. Bull Emerg Trauma 2020;8:193-8.
47. Lau H, Lee F. A prospective endoscopic study of retropubic vascular anatomy in 121 patients undergoing endoscopic extraperitoneal inguinal hernioplasty. Surg Endosc 2003;17:1376-9.
48. Pellegrino A, Damiani GR, Marco S, Ciro S, Cofelice V, Rosati F. Corona mortis exposition during laparoscopic procedure for gynecological malignancies. Updates Surg 2014;66:65-8.
49. Jensen KO, Sprengel K, Mica L, Somlyay L, Jentzsch T, Werner CM. Surgical relevance of corona mortis and clinical outcome in pelvic trauma. Austin J Anat 2015;2:1033.
50. Ates M, Kinaci E, Kose E, Soyer V, Sarici B, Cuglan S, *et al*. Corona mortis: *In vivo* anatomical knowledge and the risk of injury in totally extraperitoneal inguinal hernia repair. Hernia 2016;20:659-65.
51. Kinaci E, Ates M, Dirican A, Ozgor D. Low pressure is necessary to view and to protect corona mortis during totally extraperitoneal hernia repair. J Laparoendosc Adv Surg Tech A 2016;26:978-84.
52. Guzel Y, Elmadag NM, Arazi M, Ozen KE, Cicekcibasi AE. Anterior intra-pelvic approach and corona mortis vascular anastomoses: A clinical anatomical study shows high frequency. Vojnosanitetski Pregled 2020;77:866-71.
53. Meyers TJ, Smith WR, Ferrari JD, Morgan SJ, Franciose RJ, Echeverri JA. Avulsion of the pubic branch of the inferior epigastric artery: A cause of he- modynamic instability in minimally displaced fractures of the pubic rami. J Trauma 2000; 49:750-3.
54. Daeubler B, Anderson SE, Leunig M, Triller J. Hemorrhage secondary to pelvic fracture: Coil embolization of an aberrant

obturator artery. J Endovasc Ther 2003;10:676-80.
55. Macdonald DJ, Tollan CJ, Robertson I, Rana B. Massive haemorrhage after a low-energy pubic ramus fracture in a 71-year-old woman. Postgrad Med J 2006;82:e25.
56. Henning P, Brenner B, Brunner K, Zimmermann H. Hemodynamic in- stability following an avulsion of the corona mortis artery secondary to a benign pubic ramus fracture. J Trauma 2007;62:E14-7.
57. Smith JC, Gregorius JC, Breazeale BH, Watkins GE. The corona mortis, a frequent vascular variant susceptible to blunt pelvic trauma: Identification at routine multidetector CT. J Vasc Interv Radiol 2009;20:455-60.
58. Larsson PG, Teleman P, Persson J. A serious bleeding complication with injury of the corona mortis with the TVT-Secur procedure. Int Urogynecol J 2010;21:1175-7.
59. Rehder P, Glodny B, Pichler R, Mitterberger MJ. Massive retropubic hematoma after minimal invasive mid-urethral sling procedure in a patient with a corona mortis. Indian J Urol 2010;26:577-9.
60. Dixon S, Anthony S, Uberoi R. Corona mortis artery as a cause of a type II endoleak in an internal artery aneurysm. J Vasc Interv Radiol 2011;22:1634-5.
61. Ferrada PA, Jain K. Aberrant obturator artery: A hidden threat after pelvic fracture. Am Surg 2011;77:e126.
62. Garrido-Gómez J, Pena-Rodríguez C, Martín-Noguerol T, Hernández-Cortes P. Corona mortis artery avulsion due to a stable pubic ramus fracture. Orthopedics 2012;16;35:e80-2.
63. Kong WM, Sun CK, Tsai IT. Delayed presentation of hypovolemic shock after a simple pubic ramus fracture. Am J Emerg Med 2012;30:2090.e1-4.
64. Pua U, Teo LT. Prospective diagnosis of corona mortis hemorrhage in pelvic trauma. J Vasc Interv Radiol 2012;23:571-3.
65. Ten Broek RP, Bezemer J, Timmer FA, Mollen RM, Boekhoudt FD. Massive haemorrhage following minimally displaced pubic ramus fractures. Eur J Trauma Emerg Surg 2014;40:323-30.
66. Ramser M, Messmer AS, Zbinden I, Von Holzen U, Nebiker CA. Incarcerated obturator hernia-laparoscopic repair with intraoperative view of the corona mortis. J Surg Case Rep 2014;2014:rju081.
67. Kandhari KV, Desai MM, Bava SS, Wade RN. Avascular necrosis of acetabulum: The hidden culprit of resistant deep wound infection and failed fixation of fracture acetabulum - A case report. J Orthop Case Rep 2015;5:36-9.
68. Cerda A. Symmetric bilateral aberrant obturator artery. A Case Report. Int J Morphology 2016;34:1083-108.
69. Pinochet J, Molina CR, Flores EY. Bilateral variation of the venous corona mortis with a presentation previously undescribed. Folia Morphol (Warsz) 2016;75:409-12.
70. Xu X, Teng F, Li J, Wu J, Zhu R, Ji W. Life-threatening hemorrhage from the corona mortis treated with balloon-assisted coiling technique. Am J Emerg Med 2018;36:527.e1-3.
71. Babinski MA, Goncalves CP, Ramallo D, Pires LA, Fernandes RM. Orthopedic implications of the corona mortis: A case report. Int J Morphology 2018;36:31-4.
72. Yasuda T, Matsuda A, Miyashita M, Matsumoto S, Sakurazawa N, Kawano Y, *et al*. Life-threatening hemorrhage from the corona mortis after laparoscopic inguinal hernia repair: Report of a case. Asian J Endosc Surg 2018;11:169-72.
73. Herskowitz M, Walsh J, Lilly M, McFarland K. Importance of both internal and external iliac artery interrogation in pelvic trauma as evidenced by hemorrhage from bilateral corona mortis with unilateral aberrant origin off the external iliac artery. Case Rep Radiol 2019;2019:6734816.
74. Han J, Shah M, Djaladat H, Aron M. Corona mortis artery pseudoaneurysm causing delayed intermittent hemoperitoneum after robotic radical prostatectomy. Urology 2020;141:e24-e25.
75. Pisano U, Soon VL, Douglas P. Corona mortis injury causing delayed presentation of pelvic pseudoaneurysm. Radiol Case Rep 2021;16:1095-8.

How to cite this article: Sealy EB, Schammel CM, Varma R, Devane AM. Corona mortis in the setting of pelvic trauma: Case series and review of the literature. Am J Interv Radiol 2023;7:9.