

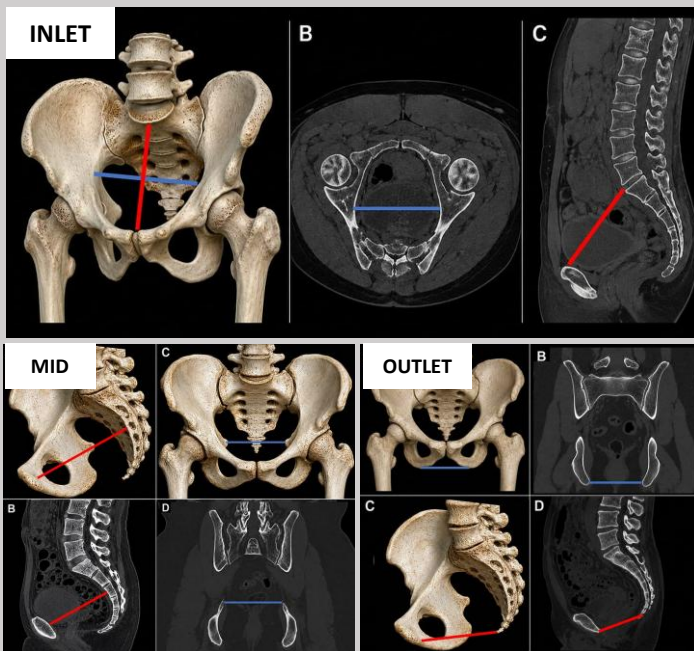
Mid-AP Extended Pelvis (MAPEX-P) and Conal Constricted Pelvis (CCP): A new pelvic shape characterization for NVD and CPD (EP16.49)

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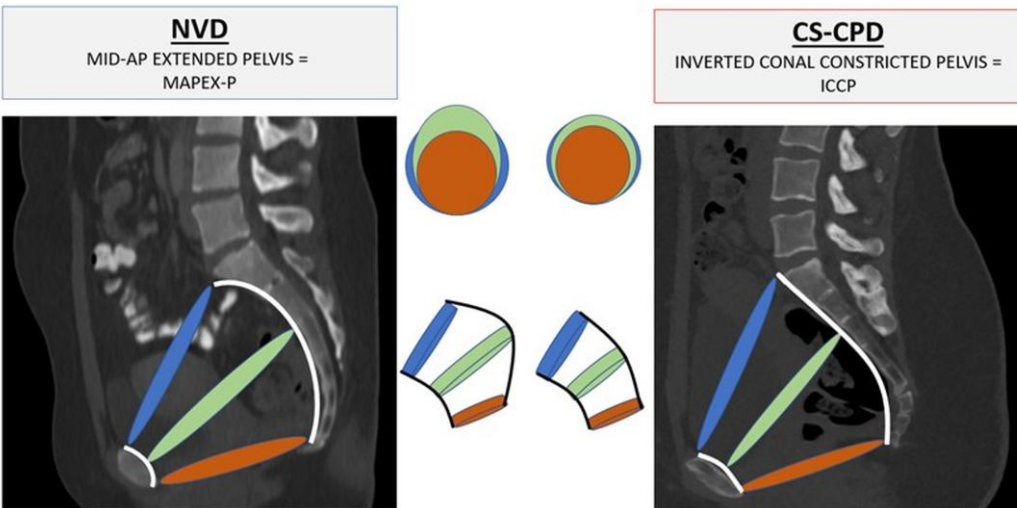
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Introduction: The typical Gynecoid and Android pelvic shapes are linked with normal vaginal delivery (NVD) and cephalopelvic disproportion (CPD), respectively, based on the Caldwell–Moloy historical classification (1938).

Methods: The pelvic Anteroposterior (AP), transverse, and circumference measurements were obtained at the inlet, mid, and outlet of the pelvis to identify characteristic pelvic features. Pelvic dimensions were compared between NVD (A, n=92) and CD-CPD (B, n=14) study groups.



Objectives: To characterize the typical pelvic shapes in NVD and cesarean delivery due to CPD (CD-CPD) based on 3D spatial pelvic reconstruction of CT/MRI volumes.



Results: The AP and transverse diameters were equal at the inlet and outlet in each study group, resulting in circular inlets and outlets in groups A and B. However, in group A, the mid-pelvis (MP) AP diameter exceeded the MP-transverse diameter, resulting in an oval MP shape with a long AP axis (13.2 ± 0.9 vs. 11.8 ± 1.2 cm, respectively; $p < 0.001$), whereas in group B, the two diameters were equal, giving the MP a circular shape. The mid pelvic circumference (PC) was smaller than the inlet PC in group A (39.0 ± 2.3 vs. 39.6 ± 2.3 cm, $p = 0.03$) and showed a trend toward being smaller in group B (37.1 ± 2.3 vs. 38.3 ± 2.0 cm, respectively, $p = 0.07$). The outlet PC was smaller than the mid-PC in groups A and B (29.5 ± 2.7 vs. 39.0 ± 2.3 cm and 29.1 ± 2.4 vs. 37.1 ± 2.3 cm, respectively; $p < 0.001$). Accordingly, the NVD group (A) displayed a characteristic pelvic shape, which we named the “Mid-AP Extended Pelvis” (MAPEX-P), while the CD-CPD group (B) exhibited an inverted conical shape, which we called the “Conal Constricted Pelvis” (CCP).

Comparison	Pelvic dimensions (cm)		P value
	AP inlet	transverse inlet	
Normal vaginal delivery	12.6±1.1	12.6±0.8	NS
Cesarean delivery for CPD	12.1±1.0	12.3±0.7	NS
	AP mid	transverse mid	
Normal vaginal delivery	13.0±0.9	11.8±1.2	<0.0001
Cesarean delivery for CPD	12.0±0.9	11.6±1.1	NS
	AP inlet	AP mid	
Normal vaginal delivery	12.6±1.1	13.0±0.9	0.001
Cesarean delivery for CPD	12.1±1.0	12.0±0.9	NS
	transverse inlet	transverse mid	
Normal vaginal delivery	12.6±0.8	11.8±1.2	<0.0001
Cesarean delivery for CPD	12.3±0.7	11.6±1.1	0.03
	inlet circumference	Mid circumference	
Normal vaginal delivery	39.6±2.3	39.0±2.3	0.03
Cesarean delivery for CPD	38.3±2.0	37.1±2.3	0.07
	AP outlet	transverse outlet	
Normal vaginal delivery	9.5±1.0	9.3±1.2	NS
Cesarean delivery for CPD	9.5±1.2	9.0±0.9	NS
	AP outlet	AP mid	
Normal vaginal delivery	9.5±1.0	13.0±0.9	<0.0001
Cesarean delivery for CPD	9.5±1.2	12.0±0.9	<0.0001
	transverse outlet	Transverse mid	
Normal vaginal delivery	9.3±1.2	11.8±1.2	<0.0001
Cesarean delivery for CPD	9.0±0.9	11.6±1.1	<0.0001
	outlet circumference	Mid circumference	
Normal vaginal delivery	29.5±2.7	39.0±2.3	<0.0001
Cesarean delivery for CPD	29.1±2.4	37.1±2.3	<0.0001

Conclusion: The NVD and CD-CPD groups display different pelvic shapes based on the spatial relationships among the inlet, mid, and outlet dimensions, which differ from those described by the traditional classification.