GEBELİK TRAVMALARI SONRASI FETAL VE NEONATAL SONUÇLAR

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Perinatoloji Bilim Dalı

Gebelikte Travma

- Maternal ve Fetal İyilik Hali İçin Entegre Yaklaşım
- Anne ve Fetüse Yönelik Bütüncül Klinik Yaklaşım
- Maternal–Fetal Çiftin Eşzamanlı Değerlendirilmesi ve Yönetimi
- İki Hastalı Sistemik Bir Yaklaşım



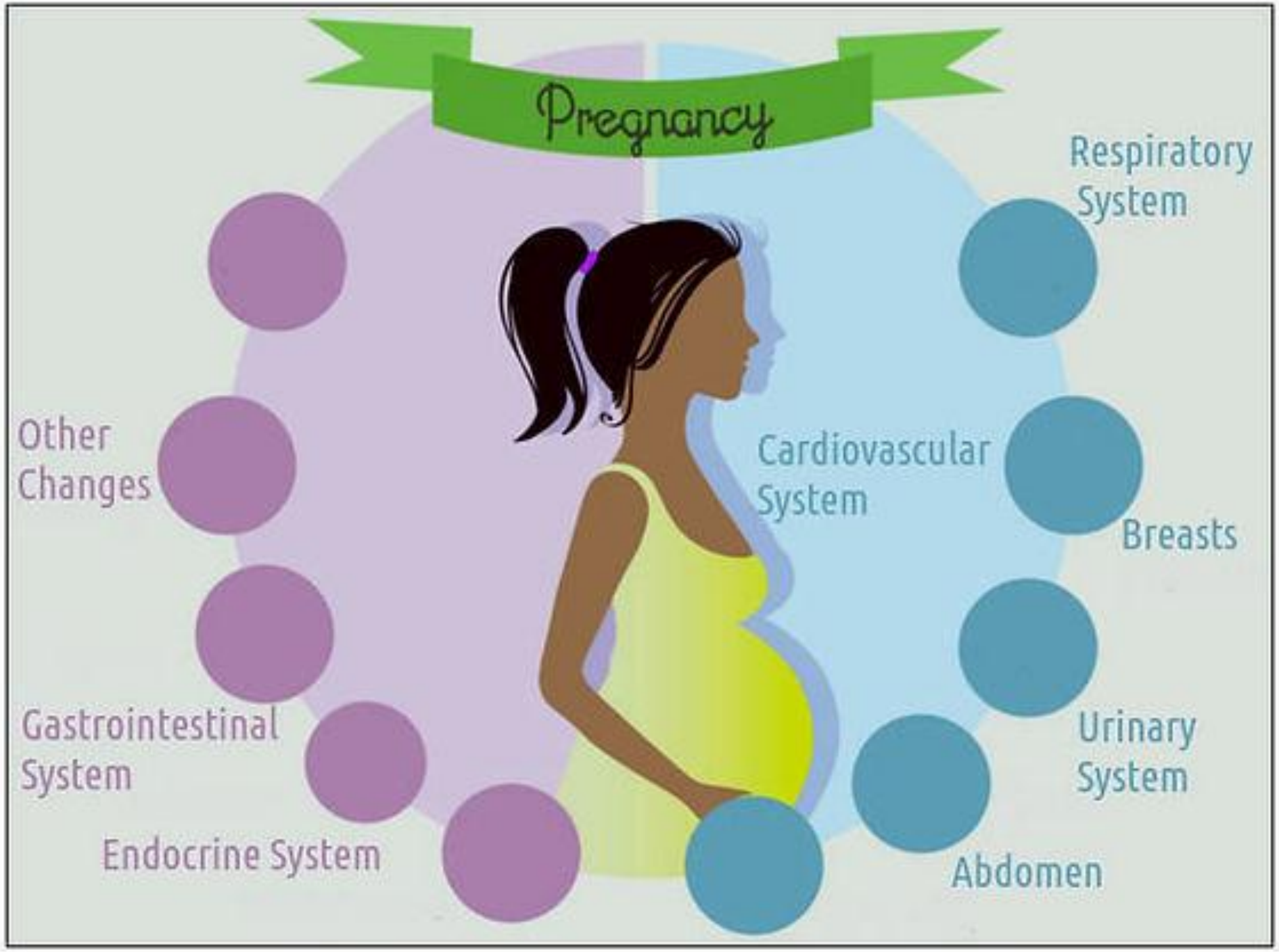
TABLE 2

Estimated incidence/prevalence of injury by type of trauma during pregnancy

Mechanism of injury	Estimated incidence/prevalence in pregnancy	Study design	Estimated incidence/prevalence outside of pregnancy
Motor vehicle crashes	207/100,000 live births[11]	Population-based cohort	1104/100,000 women[c99]
Falls and slips	48.9/100,000 live births[24]	Retrospective case-control	3029/100,000 women[100]
Burns	0.17/100,000 person-years[27]	Retrospective case-control	2.6/100,000 person-years[27]
Accidental poisoning	N/A	N/A	N/A
Domestic violence	8307/100,000 live births[101]	Review	5239/100,000 women[c44]
Suicide[a]	2/100,000 live births[61]	Retrospective cohort	8.8/100,000 population[c102]
Homicide	2.9/100,000 live births[61]	Retrospective cohort	2.3/100,000 women[100]
Penetrating trauma[b]	3.27/100,000 live births[c62]	N/A	3.4/100,000 women[c62]
Toxic exposure	25.8/100,000 person-years[103]	Retrospective cohort	115.3/100,000 person-years[104]

% 6-8

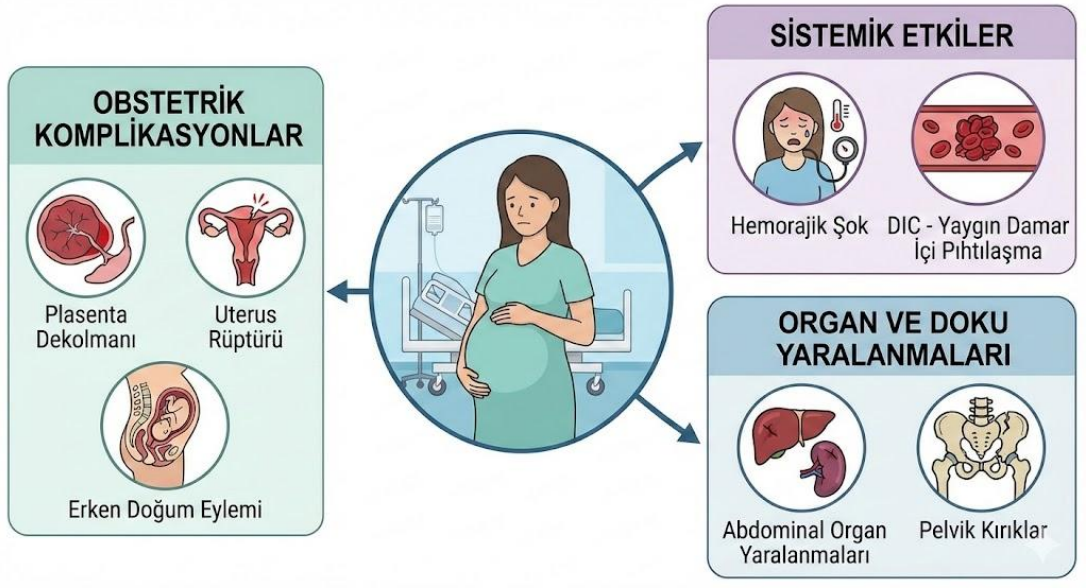
MENDEZ-FIGUEROA, Hector, et al. Trauma in pregnancy: an updated systematic review. *American journal of obstetrics and gynecology*, 2013, 209.1: 1-10.


Pregnancy
Respiratory System
Other Changes
Cardiovascular System
Breasts
Gastrointestinal System
Urinary System
Endocrine System
Abdomen

Majör Travmanın Olası Sonuçları

- Anne ölümü
- Gebe olmayan hastalarda görülebilen tüm majör travma komplikasyonları
- Fetal yaralanma veya fetal ölüm
- Gebelik komplikasyonları

Abort, abrupsiyon, preterm doğum, PPROM



Organ Yaralanmaları

- **Abdominal Organ Yaralanmaları**

Uterus yukarı çıktıkça bağırsakları yukarı iter; bu durum bağırsakları korurken, dalak ve karaciğer yaralanma riski artar

- **Pelvik Kırıklar**

Gebelikte pelvik damarlanma çok arttığı için, pelvik kırıklarda retroperitoneal kanama riski gebelikte artar

- **Mesane Yaralanması**

- Uterus büyüdükçe mesane karın boşluğuna doğru yükselir ve travmaya daha açık hale gelir.

Maternal Mortalite

- Şikago Cook County Hastanesi (%46.3)

Fildes J, Reed L, Jones N, Martin M, Barrett J. Trauma: the leading cause of maternal death. Journal of Trauma and Acute Care Surgery. 1992;32(5):643-645

- Obstetrik olmayan anne ölümlerinin en sık nedeni
- Tüm anne ölümlerinin yaklaşık %20'sini

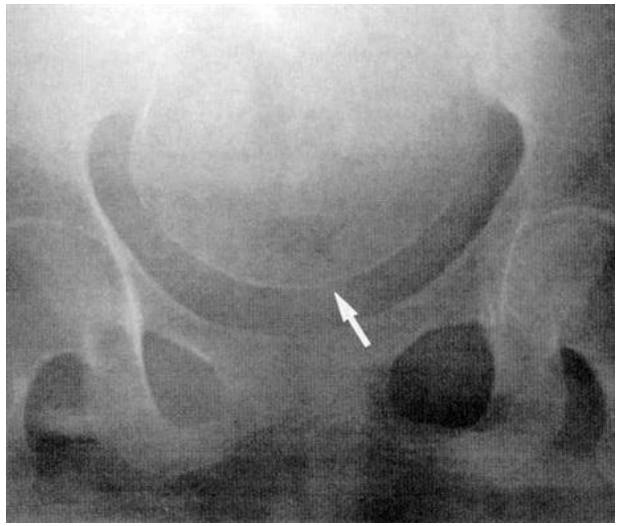
Mendez-Figueroa H, Dahlke JD, Vrees RA, Rouse DJ. Trauma in pregnancy: an updated systematic review. American Journal of Obstetrics and Gynecology. 2013;209(1):1-10

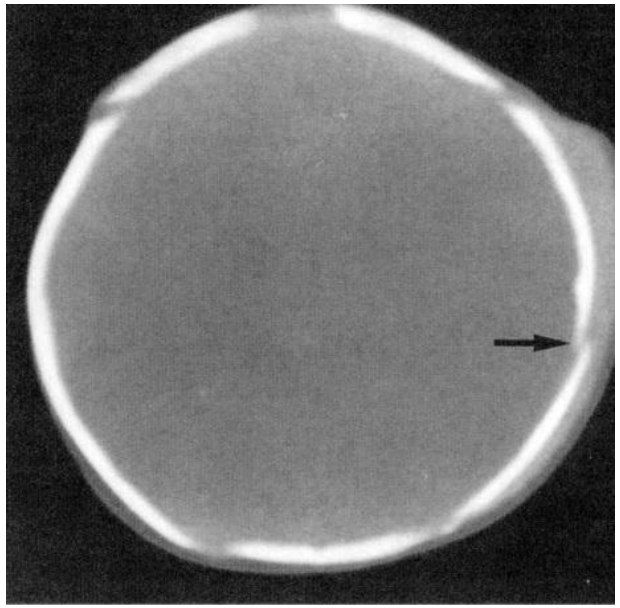
- *ACOG Practice Bulletin No. 251'i* (%6-7)

Brown HL. Trauma in pregnancy. *Obstetrics & Gynecology*. 2009;114(1):147-160

Fetal Yaralanma

- İntraserebellar hemoraji
- Sefal hematom
- Kemik fraktürleri
- Kord rüptürü
- Dalak, karaciğer rüptür / yırtılma





Author (Ref. No.)	Injury Mechanism	Maternal Injuries	Fetal Injuries	Fetal Outcome
Jones and O'Nan, 1940 (33)	MVC	Pelvic fractures	Skull fracture	Good recovery
Seear and Woeppel, 1953 (25)	MVC	Pelvic fractures	Skull fracture	Fetal death
Dyer and Barclay, 1962 (23)	MVC	Pelvic fractures	Skull fracture	Good recovery
Theurer and Kaiser, 1963 (13)	MVC	Pelvic fractures	Skull fracture, ICH[a]	Fetal death
Parkinson, 1964 (15)	MVC	Pelvic fractures	Skull fracture	Fetal death
Alexander and Davis, 1969 (30)	MVC	Pelvic fractures	Skull fracture	Good recovery
Bowdler et al., 1987	MVC	Pelvic fractures	Skull fracture, ICH[a]	Good recovery
Stafford et al., 1988 (21)	MVC	Pelvic fractures	Skull fracture, contusion	Fetal death
Evrard et al., 1989 (31)	MVC	Polytrauma, pelvic fractures	Skull fracture	Fetal death
Landers et al., 1989 (24)	MVC	Pelvic fractures	Skull fracture	Fetal death
Pike, 1958 (28)	Fall	Insignificant	Skull fracture	Good recovery
Pepperell et al., 1977 (8)	MVC	Insignificant	Skull fracture	Fetal death
	MVC	Insignificant	Skull fracture	Fetal death
	MVC	Head injury	Skull fracture	Fetal death
Sidky et al., 1991 (29)	MVC	Insignificant	Skull fracture, ICH[a]	Fetal death

[a] ICH, intracerebral hemorrhage.

HARTL, Roger; KO, Kathryn. In utero skull fracture: case report. *Journal of Trauma and Acute Care Surgery*, 1996, 41.3: 549-552.



MCCRACKEN, Bonnie. Maternal fetal trauma: when one patient becomes two: a case study. *Journal of Acute Care Surgery*, 2020, 10.1: 25-29.

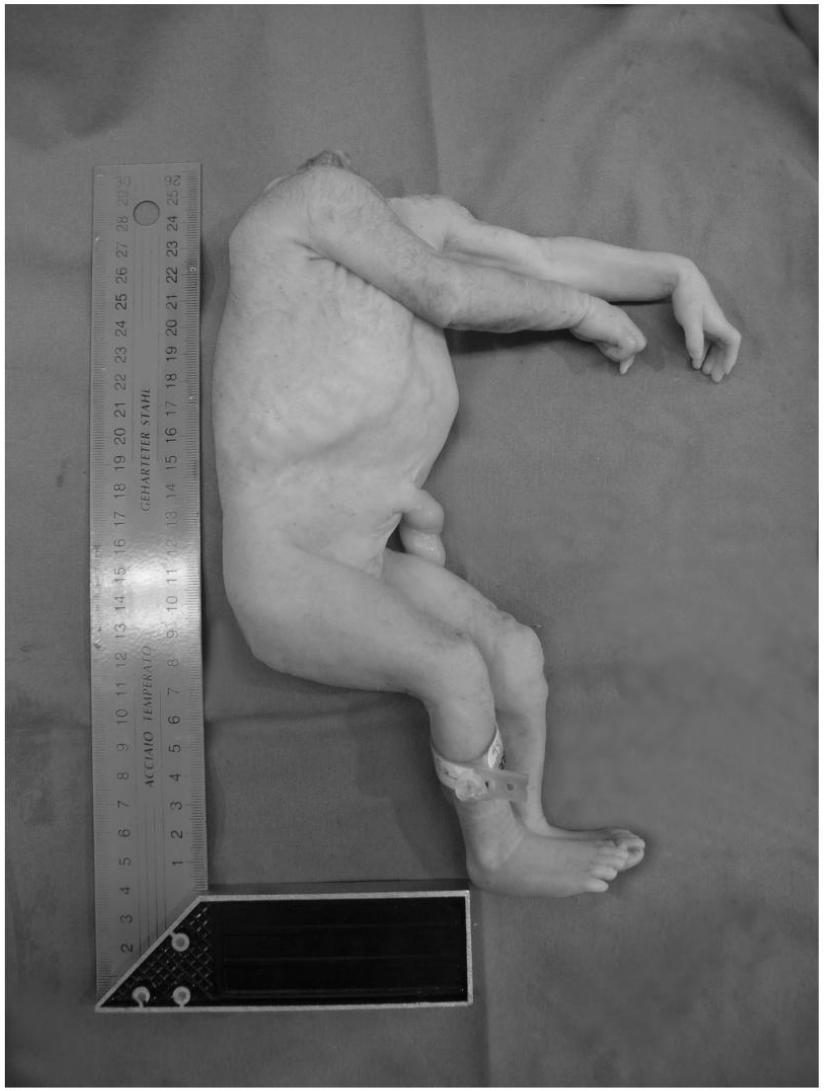


FIGURE 1. Body of the fetus without his head. Note the absence of other injury or malformation.



FIGURE 2. Head of the fetus disconnected between the cervical vertebrae C3 and C4.

AROMATARIO, Mariarosaria, et al. Intrauterine fetal decapitation after a high-speed car crash. *The American Journal of Forensic Medicine and Pathology*, 2015, 36.1: 6-9.

Fetal Kayıp %9,4

Table 1. Injury and Physiologic Profile of Those Mothers Who Did and Did Not Suffer Fetal Death

	Fetal Death	Fetal Survival	*P*
No.	35	337	
Injury Severity Score*	25.6 ± 14.9 (n = 25)	7.4 ± 8.2 (n = 236)	<.001†
Revised Trauma Score*	5.86 ± 2.70 (n = 21)	7.72 ± .68 (n = 183)	<.001†
Glascow Coma Scale score*	10.0 ± 5.5 (n = 34)	14.5 ± 2.0 (n = 307)	<.001†
pH*	7.31 ± 0.16 (n = 19)	7.41 ± .09 (n = 105)	<.001†
Systolic blood pressure <90 mm Hg, No.	8	7	<.001‡
Fetal heart rate <110 beats/min at any time, No.	17	3	<.001‡

Rogers FB, Rozycki GS, Osler TM, et al. A Multi-institutional Study of Factors Associated With Fetal Death in Injured Pregnant Patients. *Arch Surg.* 1999;134(11):1274–1277.

İlk trimester

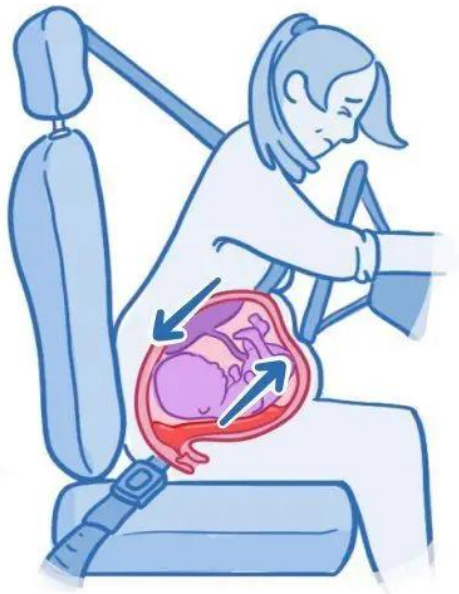
- Abortus nadir
- Maternal pelvis uterusu korur
- Minör travma sonrası 1,6 – 1,8 kat artmış risk

- Ciddi hipotansiyon
- Pelvik yaralanma

ABDOMINAL TRAUMA

MINOR BUMPS ⟶ MAJOR EVENTS

BLUNT TRAUMA



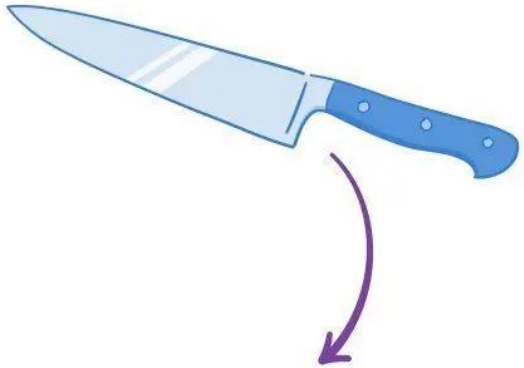


SHEARING FORCES

↳ PLACENTAL ABRUPTION



PENETRATING



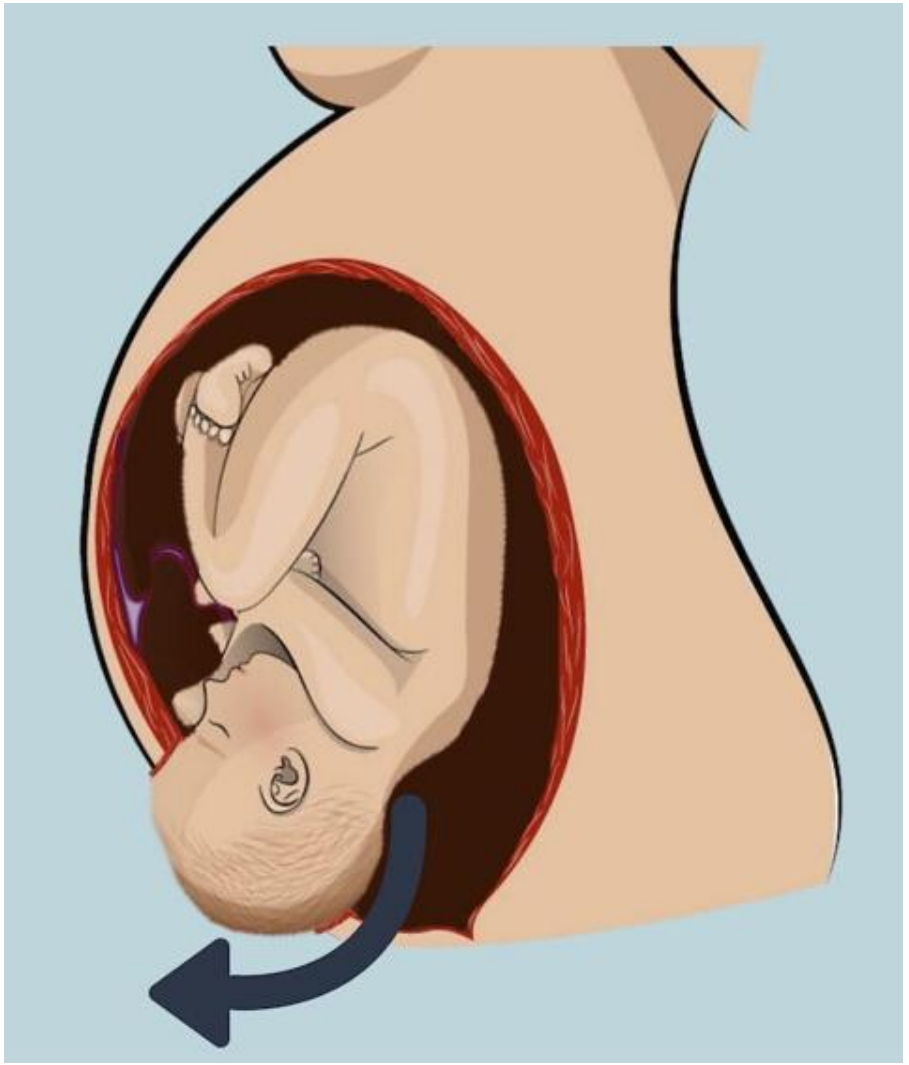
RUPTURE of UTERUS



Rüptür

- Keskin yada künt abdominal travma
- Penetran yaralanma

- Myometriyum yırtılması
- Tam kat / kısmi



Bulgular

Maternal

- Ani başlayan, şiddetli ağrı
- Hemodinamik instabilite

  Taşikardi, hipotansiyon, şok bulguları
- Abdominal hassasiyet
- Distansiyon
- Fetal kısımların palpasyonu
- Vajinal kanama

Fetal

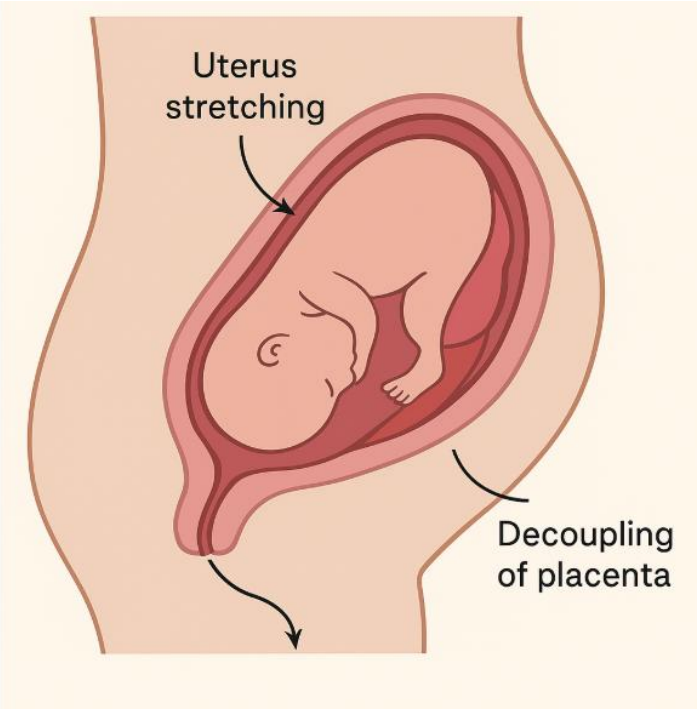
- Akut Fetal Distres

  Non-reassuring fetal kalp atım paterni
- Fetal ölüm

Author	Mechanism of injury	Location of laceration	Size and direction of laceration	Fetal outcome	Maternal outcome	GA
Woldeyes et al. (2015) [8]	Motorcycle accident	Left upper uterine body	10 cm, transverse	Fetal demise	Hysterectomy, transfusion	39 weeks
Venant et al. (2013) [7]	Motorcycle accident	Fundal	5 cm	Fetal demise	Laceration repair, retroperitoneal hematoma, endmoteritis	19 weeks
Yakasai et al. (2012) [9]	Motor vehicle accident	Posterior uterine body	12 cm	Fetal demise	Hysterectomy	26 weeks
Enakpene et al. (2005) [11]	Motorcycle accident	Left lateral lower uterine segment	6 cm, longitudinal with cervix extension	Live birth, Cesarean delivery	Laceration repair	38 weeks
Belkouch et al. (2014) [5]	Motorcycle accident	Fundal	Not reported	Fetal demise	Laceration repair, DIC, hemorrhagic shock, maternal death	12 weeks
Mahajan and Kale (2008) [6]	Fall from bridge	Fundal	Not reported	Fetal demise	Hysterectomy	Term
Zydeck et al. (1995) [10]	Motor vehicle accident	Fundal	10 cm, transcornual	Fetal demise	Laceration repair, pancreatitis	37 weeks

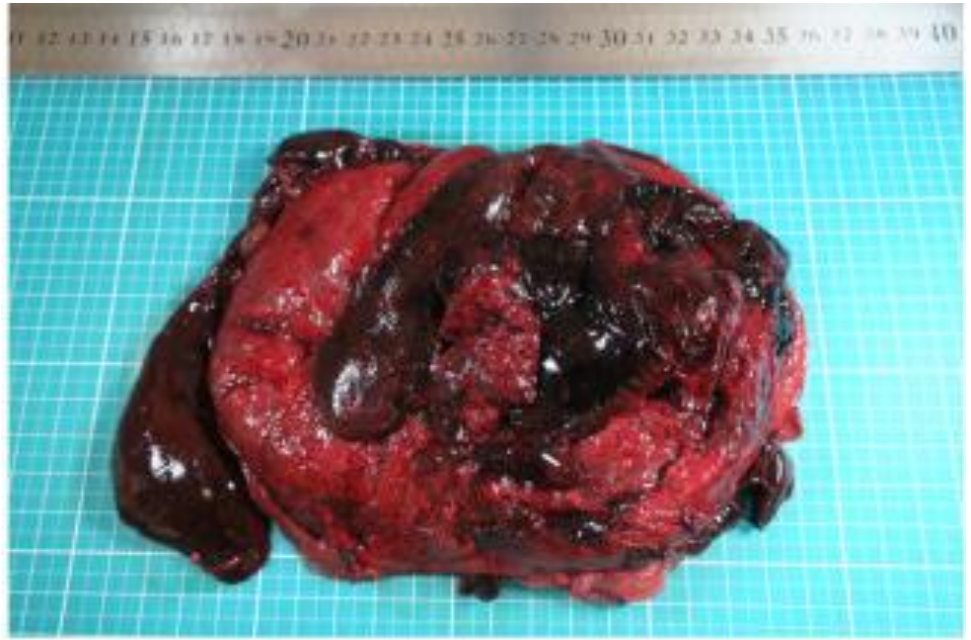
Dekolman Etiyopatogenez

- Ani akselerasyon-deselerasyon durumlarında rahim esneyip şekil değiştirirken, **plasenta elastik olmadığı** ve amniyotik sıvı sıkışmadığı için bu değişime uyum sağlayamaz
- Bu fiziksel uyumsuzluk, uterus ile plasenta arasındaki bağlantı noktasında bir gerilime ***(makaslama kuvveti)*** yol açar



Dekolman Bulgular

- Şok
- Anormal fetal kalp trasesi / fetal ölüm
- Uterin hassasiyet
- Periton irritasyon bulguları
- Vajinal kanama



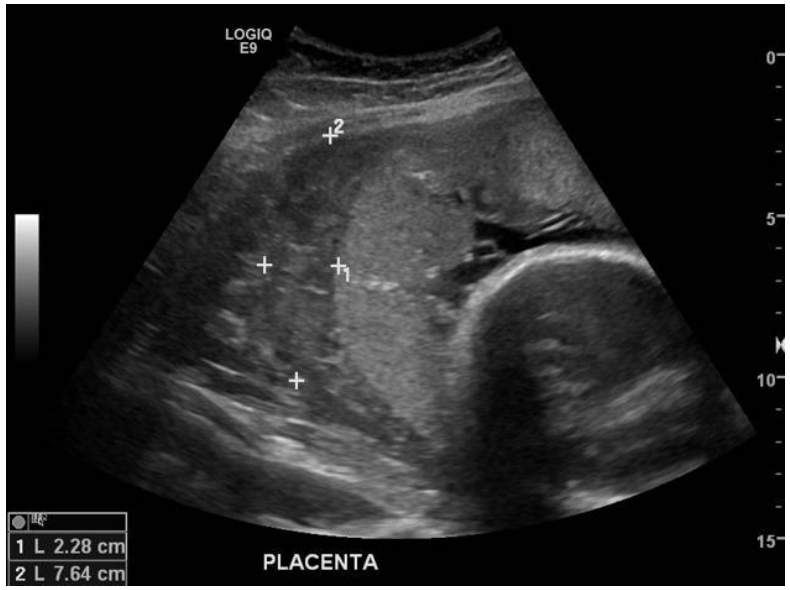
Dekolman – Usg ile Tanısı

- Sensitivite %24, Spesifite %96, Pozitif Prediktif Değer %88

Glantz, C., & Purnell, L. (2002). Clinical utility of sonography in the diagnosis and treatment of placental abruption. *Journal of Ultrasound in Medicine*, 21(8), 837-840

- Sensitivite %57, Spesifite %100

Shinde, G. R.et al. (2016). Diagnostic Performance of Ultrasonography for Detection of Abruption and Its Clinical Correlation and Maternal and Foetal Outcome. *Journal of Clinical and Diagnostic Research*, 10(8), QC04–QC07.





Preterm Doğum

- **%25–40'ında** uterin kontraksiyon

- Klinik olarak anlamlı **preterm doğum oranı %5–15** arasında

- Travmanın şiddeti
- Lokalizasyonuna

Patogenez

- Uteroplasental Shear Stress
- Akselerasyon–deselerasyon
- Dekolman
- İntrauterin kanamaya
- kontraksiyon başlatıcı prostaglandin salınımın

- Direkt Uterin Travma
- Abdominal travma
- Miyometriyumda kasılma refleksi
- Lokal inflamasyon
- Oksitosin ve prostaglandin artışı

- Maternal Stres ve Katekolamin Deşarjı
- Ağrı, kan kaybı veya emosyonel stres →
- katekolamin yükselmesi,
- uteroplasental vazokonstriksiyon,
- uterin irritabilite

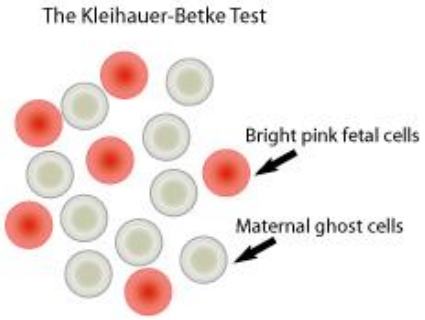
- İnflamatuar Yanıt
- Travma → doku hasarı → sitokin artışı (IL-6, TNF-α) →
- servikal olgunlaşma,
- membran zayıflaması,
- uterin kasılmalar.

Prematür Membran Rüptürü (PPROM)

- Mekanik gerilme, direkt darbe veya shear stress
- İnflamatuar yanıt (IL-6, TNF-α, MMP aktivasyonu)
- Membran kollajeni
- Serbest radikal ve proteaz artışı

- PPROM, travmadan sonra **ilk 24–72 saat** içinde ortaya çıkabileceği gibi daha geç dönemde de gelişebilir.

Fetomaternal Kanama



- % 9-30
- 4-5 kat artmış risk

- Risk faktörleri: anterior plasenta ve uterin hassasiyet

- Komplikasyonlar: anemi, fetal ölüm, alloimmunizasyon

Fetal ve Neonatal Kötü Sonuçlar Ne Sıklıkta Görülür?

Table 2. Maternal and perinatal outcomes in pregnant trauma patients.

	Trauma (n=1262)	No trauma (n=2,406,605)	p[d]
Outcomes in patients with and without trauma			
Maternal outcomes			
Composite maternal outcomes[a]	19.1%	1.9%	**<.001**
Severe maternal morbidity[b]	14.0%	0.51%	**<.001**
Preeclampsia	7.3%	4.1%	**<.001**
Placental abruption	3.8%	0.81%	**<.001**
Disseminated intravascular coagulation	0.48%	0.04%	**<.001**
Perinatal outcomes			
Composite perinatal outcomes[c]			
All gestational ages	3.1%	0.87%	**<.001**
Term only	0.66%	0.25%	**.007**
Fetal demise			
All gestational ages	1.9%	0.53%	**<.001**
Term only	0.28%	0.14%	.21
Neonatal death			
All gestational ages	0.81%	0.20%	**<.001**
Term only	0.19%	0.03%	**.002**
Preterm birth <32 weeks	6.8%	3.2%	**<.001**
Preterm birth <37 weeks	18.6%	10.9%	**<.001**
Very low birth weight (<2500 g)	9.6%	4.9%	**<.001**
	SMM (n=177)	No SMM (n=1085)	
Outcomes in trauma patients with and without severe maternal morbidity (SMM)[b]			
Composite perinatal outcomes[c]			
All gestational ages	6.8%	2.5%	**.002**
Term only	0.79%	0.64%	.84
Preterm birth <32 weeks	14.8%	5.4%	**<.001**
Preterm birth <37 weeks	29.0%	16.8%	**<.001**

FABRICANT, Sonya P.; GREINER, Karen S.; CAUGHEY, Aaron B. Trauma in pregnancy and severe adverse perinatal outcomes. *The Journal of Maternal-Fetal & Neonatal Medicine*, 2021, 34.18: 3070-3074.

TABLE 4. Maternal and perinatal outcomes among uninjured women following a motor vehicle crash, stratified by timing of crash hospitalization in relation to delivery, Washington State, 1989–2001

Pregnancy outcome	No motor vehicle crash (n = 17,274)		Motor vehicle crash hospitalization prior to delivery: ISS* 0 (n = 151)				Motor vehicle crash hospitalization at delivery: ISS 0 (n = 38)			
	No.	%	No.	%	RR*,†	95% CI*	No.	%	RR†	95% CI
Maternal										
Preterm labor	1,143	6.6	89	58.9	9.0	7.2, 11.3	8	21.1	3.3	1.6, 6.9
Premature rupture of membranes	347	2.0	3	2.0	1.0‡	0.3, 3.1	2	5.3	2.6‡	0.7, 10.5
Placental abruption	248	1.4	12	7.8	6.6	3.7, 11.9	4	10.5	7.3‡	2.7, 19.7
Labor induction	4,068	23.6	36	23.8	1.0	0.7, 1.4	10	26.3	1.2	0.6, 2.3
Cesarean delivery	3,367	19.5	32	21.2	1.2	0.8, 1.7	13	34.2	1.8	1.0, 3.3
Perinatal										
Gestational age <37 weeks	1,370	8.0	14	9.4	1.4	0.8, 2.4	7	18.4	2.9	1.3, 6.4
Birth weight <2,500 g	765	4.4	7	4.6	0.8	0.3, 2.0	11	29.0	5.9	2.9, 11.9
Small for gestational age	1,230	9.3	11	11.2	1.1	0.6, 2.1	8	25.8	2.4	1.1, 5.4
Meconium at delivery	962	6.1	15	11.0	1.7	1.0, 3.0	2	5.6	0.9‡	0.2, 3.7
Fetal distress	1,621	9.4	14	9.3	0.9	0.5, 1.7	9	23.7	2.1	0.9, 4.6
Hypoxia	243	1.4	4	2.7	1.9‡	0.5, 5.3	0			
Respiratory distress syndrome	209	1.2	4	2.7	2.2‡	0.8, 5.9	3	7.9	6.5‡	2.1, 20.4
Fetal death	47	0.3	0				0			

Grup 1
Maternal ölüm OR 69 (95% CI 42-115)
Fetal ölüm OR 4.7 (95% CI 3.4-6.4)
Uterine rüptür OR 43 (95% CI 19-9
Placental abruption OR 9.2 (95% CI 7.8-11)

Grup 2
Placental abruption OR 1.6 (95% CI 1.3-1.9)
Preterm doğum OR 2.7 (95% CI 2.5-2.9),

Table IV Outcomes of injury stratified by severity

		Injury at Delivery (group 1)						Injury prenatally (group 2)					
					Adjusted OR						Adjusted OR		
Outcome	Injury severity	N	%	*P*-value	OR	LCL	UCL	N	%	*P*-value	OR	LCL	UCL
Preterm labor	ISS<9	231	14.1	.000	2.08	1.81	2.39	870	19.5	.000	2.90	2.69	3.13
	ISS≥9	36	16.9	.000	2.55	1.78	3.66	109	12.7	.000	1.71	1.39	2.09
PROM	ISS<9	42	2.6	.007	1.53	1.12	2.08	82	1.8	.237	1.14	0.92	1.42
	ISS≥9	3	1.4	.900	0.93	0.30	2.91	19	2.2	.073	1.37	0.87	2.17
Abruption	ISS<9	111	6.8	.000	7.65	6.30	9.29	67	1.5	.001	1.52	1.19	1.94
	ISS≥9	38	17.8	.000	22.89	16.06	32.62	15	1.7	.030	1.76	1.06	2.94
Induction	ISS<9	43	2.6	.250	1.20	0.88	1.62	104	2.3	.253	1.12	0.92	1.36
	ISS≥9	4	1.9	.977	0.98	0.36	2.66	14	1.6	.400	0.80	0.47	1.35
Cesarean section	ISS<9	562	34.2	.000	1.74	1.57	1.93	1151	25.8	.000	1.21	1.13	1.29
	ISS≥9	164	77.0	.000	12.71	9.19	17.57	210	24.4	.032	1.19	1.01	1.39
Maternal death	ISS<9	1	0.1	.112	4.93	0.69	35.17	3	0.1	.004	5.28	1.69	16.48
	ISS≥9	15	7.0	.000	554.7	317.4	969.3	0	0.0	.982	—	—	—
Uterine rupture prior labor	ISS<9	2	0.1	.000	16.34	4.06	65.8	0	0.0	.977	—	—	—
	ISS≥9	4	1.9	.000	233.9	85.8	637.8	0	0.0	.990	—	—	—
Uterine rupture during labor	ISS<9	5	0.3	.001	4.61	1.91	11.10	2	0.0	.629	0.71	0.18	2.84
	ISS≥9	6	2.8	.000	42.14	18.63	95.33	0	0.0	.937	—	—	—
Transfusion	ISS<9	46	2.8	.000	9.12	6.80	12.25	26	0.6	.003	1.82	1.24	2.67
	ISS≥9	32	15.0	.000	54.46	37.21	79.72	4	0.5	.471	1.44	0.54	3.84
Cesarean hysterectomy	ISS<9	8	1.4	.000	5.39	2.66	10.91	2	0.2	.580	0.68	0.17	2.71
	ISS≥9	7	4.3	.000	16.22	7.45	35.27	1	0.5	.483	2.03	0.28	14.55
Preterm delivery	ISS<9	266	17.9	.000	1.81	1.58	2.06	541	13.5	.000	1.19	1.08	1.30
	ISS≥9	70	37.6	.000	4.79	3.54	6.47	113	14.7	.014	1.29	1.05	1.57
Low birth weight	ISS<9	197	12.0	.000	1.44	1.18	1.76	407	9.1	.000	1.39	1.23	1.58
	ISS≥9	72	33.8	.000	3.60	2.34	5.53	82	9.5	.075	1.31	0.97	1.75
Fetal distress	ISS<9	245	14.9	.000	1.61	1.39	1.86	508	11.4	.001	1.19	1.08	1.31
	ISS≥9	65	30.5	.000	4.21	3.06	5.77	103	12.0	.060	1.23	0.99	1.54
Asphyxia	ISS<9	19	1.2	.003	2.05	1.27	3.32	21	0.5	.773	0.94	0.60	1.46
	ISS≥9	11	5.2	.000	4.59	2.02	10.42	6	0.7	.749	1.16	0.48	2.79
RDS	ISS<9	70	4.3	.000	1.82	1.35	2.44	73	1.6	.884	1.02	0.79	1.32
	ISS≥9	32	15.0	.000	3.52	2.09	5.95	18	2.1	.690	1.11	0.66	1.89
Fetal death	ISS<9	25	1.7	.000	2.70	1.76	4.14	22	0.5	.835	1.05	0.68	1.63
	ISS≥9	28	15.1	.000	16.85	9.90	28.68	3	0.4	.319	0.55	0.17	1.78
Neonatal death	ISS<9	16	1.1	.000	2.97	1.70	5.19	15	0.4	.852	0.95	0.55	1.65
	ISS≥9	7	4.4	.011	3.61	1.35	9.67	4	0.5	.856	0.91	0.31	2.67
Infant death	ISS<9	18	1.2	.009	1.98	1.19	3.29	27	0.7	.708	1.08	0.72	1.63
	ISS≥9	8	5.1	.011	3.17	1.31	7.67	6	0.8	.798	0.89	0.37	2.15

EL KADY, Dina, et al. Trauma during pregnancy: an analysis of maternal and fetal outcomes in a large population. *American journal of obstetrics and gynecology*, 2004, 190.6: 1661-1668.

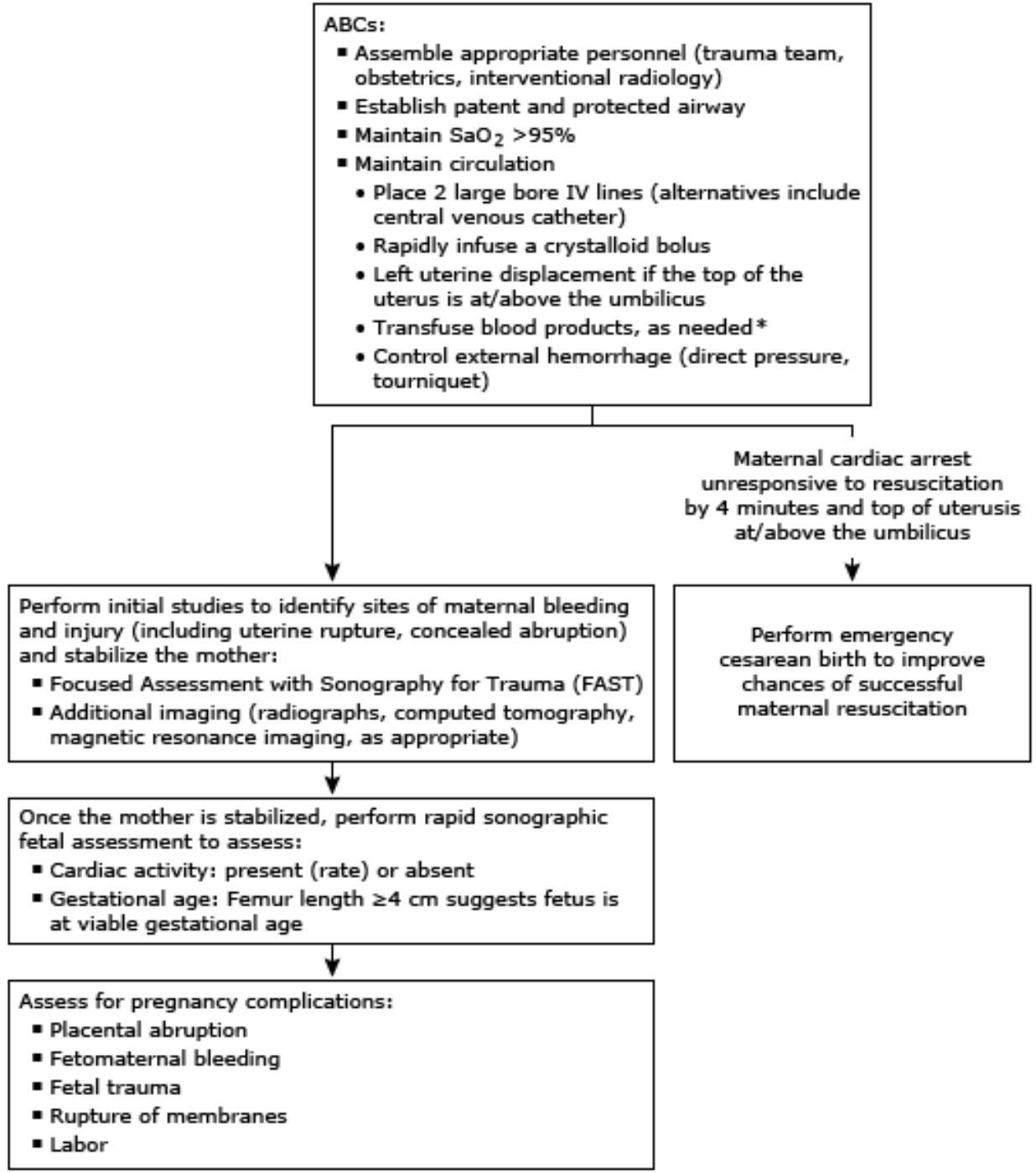
TABLE 5. Multivariate Logistic Regression Analysis for Risk Factors of Fetal Delivery in Pregnant Trauma Patients

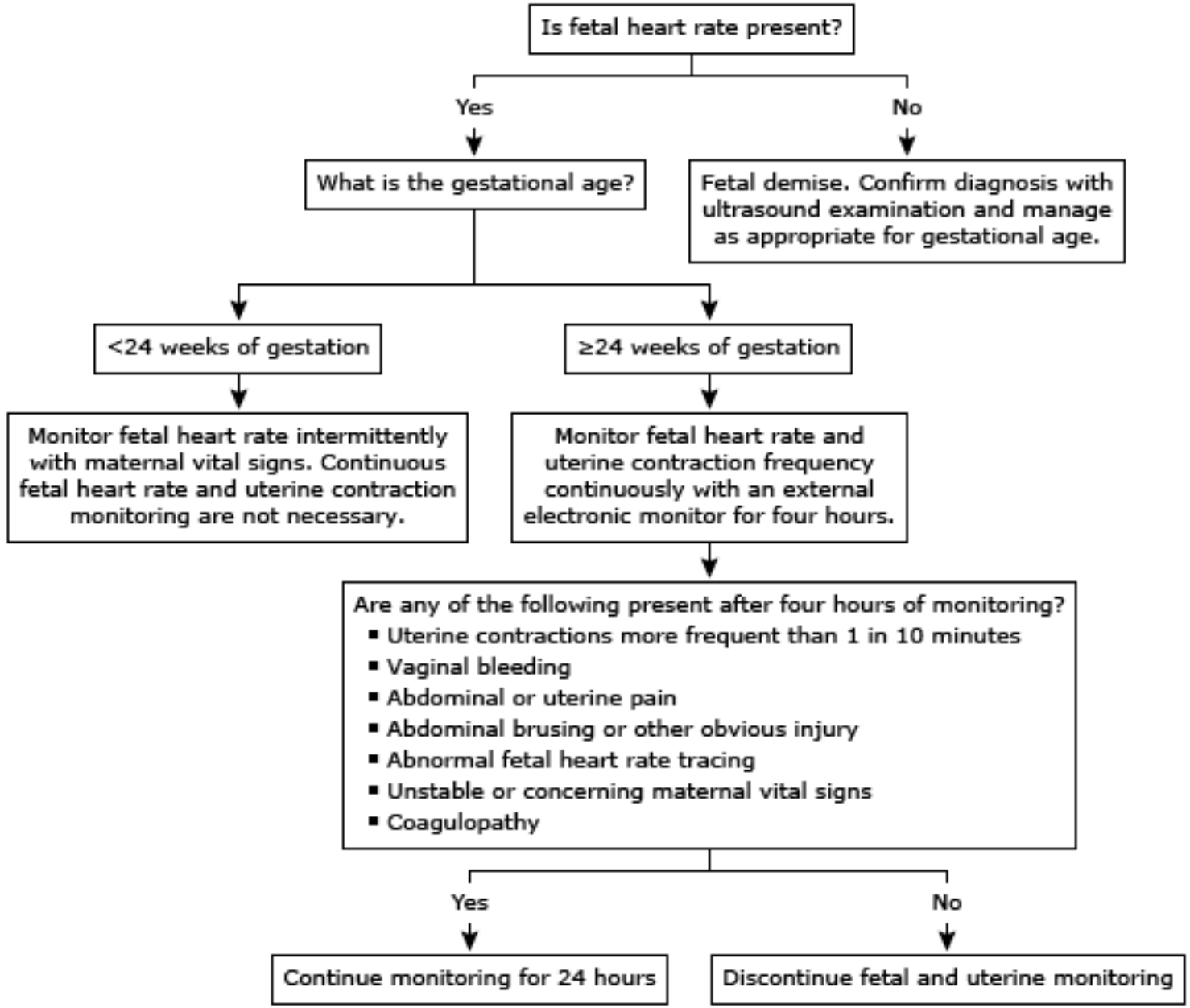
Characteristics	OR	95% CI	*p*
Gestational age* (weeks)	1.68	1.44–1.95	<0.001
Positive E-FAST	1.94	0.23–16.10	0.540
Abdominal injury	4.07	1.11–15.02	0.035
Uterine contractions	1.88	0.83–4.25	0.131
Abnormal fetal heart tracing	12.72	5.19–31.17	<0.001
PROM	35.97	7.28–177.74	<0.001

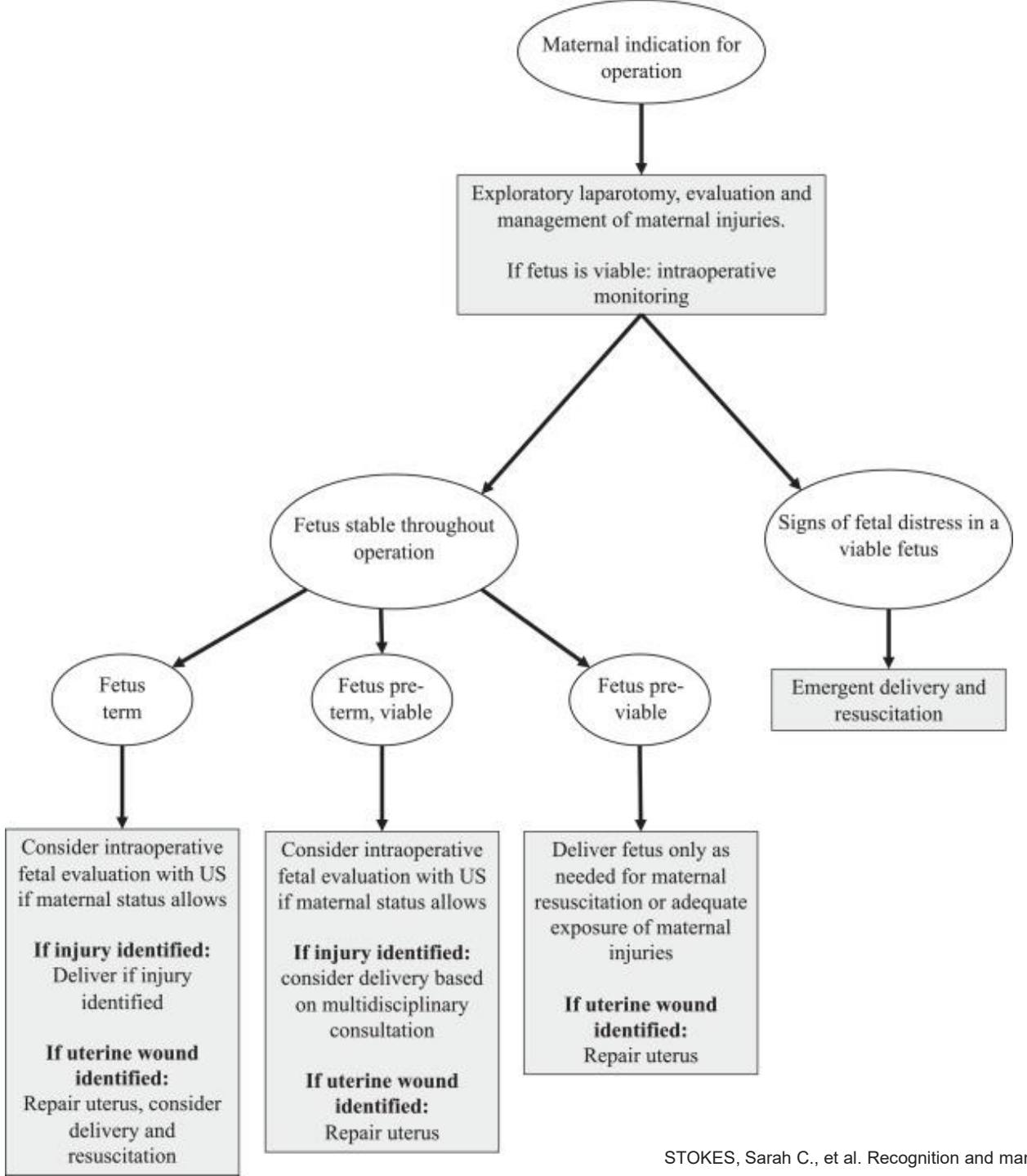
SANTOS, Jeffrey W., et al. Predictors of fetal delivery in pregnant trauma patients: a multicenter study. *Journal of Trauma and Acute Care Surgery*, 2024, 96.1: 109-115.

Fetal – Neonatal Sonuçları İyileştirmede En İdeal Yönetim Nasıl Olmalıdır?

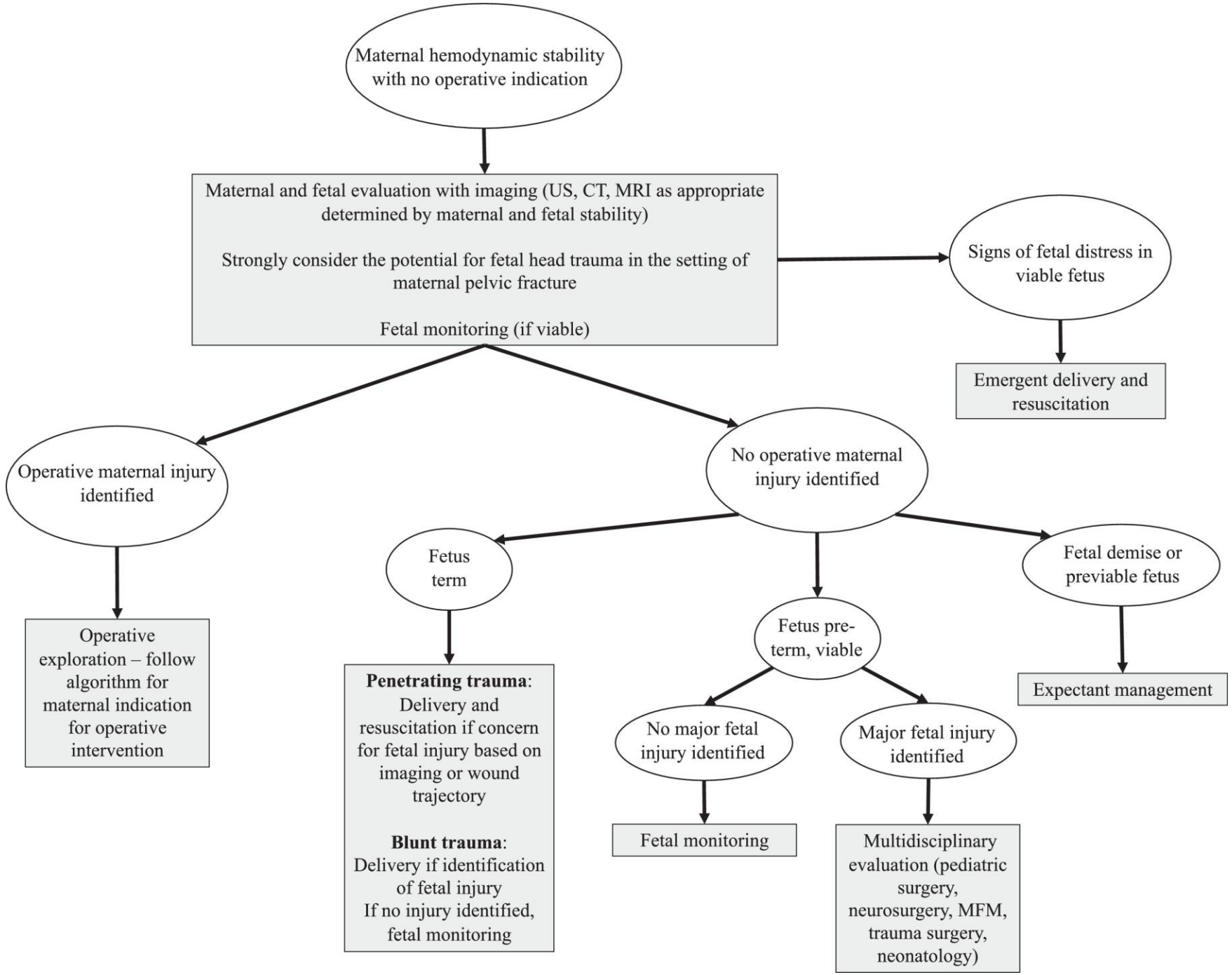
Kadın Doğum Hekimine Düşen Görevler Nelerdir?


ABCs:
Assemble appropriate personnel (trauma team, obstetrics, interventional radiology)
Establish patent and protected airway
Maintain SaO_2 >95%
Maintain circulation
Place 2 large bore IV lines (alternatives include central venous catheter)
Rapidly infuse a crystalloid bolus
Left uterine displacement if the top of the uterus is at/above the umbilicus
Transfuse blood products, as needed*
Control external hemorrhage (direct pressure, tourniquet)
Maternal cardiac arrest unresponsive to resuscitation by 4 minutes and top of uterusis at/above the umbilicus
Perform initial studies to identify sites of maternal bleeding and injury (including uterine rupture, concealed abruption) and stabilize the mother:
Focused Assessment with Sonography for Trauma (FAST)
Additional imaging (radiographs, computed tomography, magnetic resonance imaging, as appropriate)
Perform emergency cesarean birth to improve chances of successful maternal resuscitation
Once the mother is stabilized, perform rapid sonographic fetal assessment to assess:
Cardiac activity: present (rate) or absent
Gestational age: Femur length ≥4 cm suggests fetus is at viable gestational age
Assess for pregnancy complications:
Placental abruption
Fetomaternal bleeding
Fetal trauma
Rupture of membranes
Labor


Is fetal heart rate present?
Yes
No
What is the gestational age?
Fetal demise. Confirm diagnosis with ultrasound examination and manage as appropriate for gestational age.
<24 weeks of gestation
≥24 weeks of gestation
Monitor fetal heart rate intermittently with maternal vital signs. Continuous fetal heart rate and uterine contraction monitoring are not necessary.
Monitor fetal heart rate and uterine contraction frequency continuously with an external electronic monitor for four hours.
Are any of the following present after four hours of monitoring?
Uterine contractions more frequent than 1 in 10 minutes
Vaginal bleeding
Abdominal or uterine pain
Abdominal brusing or other obvious injury
Abnormal fetal heart rate tracing
Unstable or concerning maternal vital signs
Coagulopathy
Yes
No
Continue monitoring for 24 hours
Discontinue fetal and uterine monitoring



STOKES, Sarah C., et al. Recognition and management of traumatic fetal injuries. *Injury*, 2022, 53.4: 1329-1344.



STOKES, Sarah C., et al. Recognition and management of traumatic fetal injuries. *Injury*, 2022, 53.4: 1329-1344.

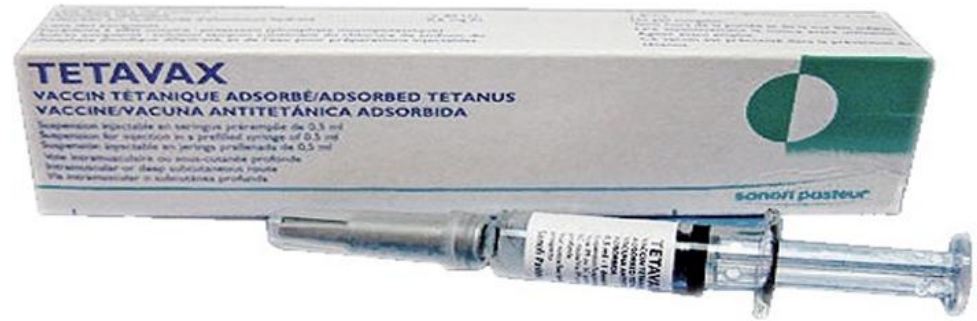
Anti-D İmmunglobulin

- Rh negatif gebelerde
- Major travma
- Vajinal kanama



Antenatal kortikosteroid

- 23 - 34
- 22?? – 36w6d??
- Betametazone (12 mg im; 24 st; 2 doz)
- Maternal lökositoz, hiperglisemi



Previous doses of tetanus toxoid*	Clean and minor wound		All other wounds¶	
	Tetanus toxoid-containing vaccine△	Human tetanus immune globulin	Tetanus toxoid-containing vaccine△	Human tetanus immune globulin◇
<3 doses or unknown	Yes§	No	Yes§	Yes
≥3 doses	Only if last dose given ≥10 years ago	No	Only if last dose given ≥5 years ago¥	No

Özet....

- Anne Stabilizasyonu Önceliklidir (Ana Kural)
- Gebelik Haftası (Viyabilite >24 hafta)
- Fetal Monitorizasyon (minimum 4 st)
- Multidisipliner Yaklaşım

  Acil Tıp + Kadın Doğum + Travma Cerrahisi + Neonatoloji

2.ULUSLARARASI TRAVMA KONGRESİ
27-30 KASIM 2025 - KONYA ŞEHİR HASTANESİ



Teşekkürler.....

Online Bilimsel Program: