

# Organ injury scaling 2018 update: Spleen, liver, and kidney

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**TABLE 3. Kidney Injury Scale—2018 Revision**

AAST Grade	AIS Severity	Imaging Criteria (CT Findings)	Operative Goals	Pathologic Criteria
I	2	<ul style="list-style-type: none"> <li>– Subcapsular hematoma and/or parenchymal contusion without laceration</li> </ul>	<ul style="list-style-type: none"> <li>– Nonexpanding subcapsular hematoma</li> <li>– Parenchymal contusion without laceration</li> </ul>	<ul style="list-style-type: none"> <li>– Subcapsular hematoma or parenchymal contusion without parenchymal laceration</li> </ul>
II	2	<ul style="list-style-type: none"> <li>– Perirenal hematoma confined to Gerota fascia</li> </ul>	<ul style="list-style-type: none"> <li>– Nonexpanding perirenal hematoma confined to Gerota fascia</li> </ul>	<ul style="list-style-type: none"> <li>– Perirenal hematoma confined to Gerota fascia</li> </ul>
		<ul style="list-style-type: none"> <li>– Renal parenchymal laceration ≤1 cm depth without urinary extravasation</li> </ul>	<ul style="list-style-type: none"> <li>– Renal parenchymal laceration ≤1 cm depth without urinary extravasation</li> </ul>	<ul style="list-style-type: none"> <li>– Renal parenchymal laceration ≤1 cm depth without urinary extravasation</li> </ul>
III	3	<ul style="list-style-type: none"> <li>– Renal parenchymal laceration &gt;1 cm depth without collecting system rupture or urinary extravasation</li> <li>– Any injury in the presence of a kidney vascular injury or active bleeding contained within Gerota fascia</li> </ul>	<ul style="list-style-type: none"> <li>– Renal parenchymal laceration &gt;1 cm depth without collecting system rupture or urinary extravasation</li> <li>–</li> </ul>	<ul style="list-style-type: none"> <li>– Renal parenchymal laceration &gt;1 cm depth without collecting system rupture or urinary extravasation</li> </ul>
IV	4	<ul style="list-style-type: none"> <li>– Parenchymal laceration extending into urinary collecting system with urinary extravasation</li> <li>– Renal pelvis laceration and/or complete ureteropelvic disruption</li> <li>– Segmental renal vein or artery injury</li> <li>– Active bleeding beyond Gerota fascia into the retroperitoneum or peritoneum</li> <li>– Segmental or complete kidney infarction(s) due to vessel thrombosis without active bleeding</li> </ul>	<ul style="list-style-type: none"> <li>– Parenchymal laceration extending into urinary collecting system with urinary extravasation</li> <li>– Renal pelvis laceration and/or complete ureteropelvic disruption</li> <li>– Segmental renal vein or artery injury</li> <li>– Segmental or complete kidney infarction(s) due to vessel thrombosis without active bleeding</li> </ul>	<ul style="list-style-type: none"> <li>– Parenchymal laceration extending into urinary collecting system</li> <li>– Renal pelvis laceration and/or complete ureteropelvic disruption</li> <li>– Segmental renal vein or artery injury</li> <li>– Segmental or complete kidney infarction(s) due to vessel thrombosis without active bleeding</li> </ul>
V	5	<ul style="list-style-type: none"> <li>– Main renal artery or vein laceration or avulsion of hilum</li> <li>– Devascularized kidney with active bleeding</li> <li>– Shattered kidney with loss of identifiable parenchymal renal anatomy</li> </ul>	<ul style="list-style-type: none"> <li>– Main renal artery or vein laceration or avulsion of hilum</li> <li>– Devascularized kidney with active bleeding</li> <li>– Shattered kidney with loss of identifiable parenchymal renal anatomy</li> </ul>	<ul style="list-style-type: none"> <li>– Main renal artery or vein laceration or avulsion of hilum</li> <li>– Devascularized kidney</li> <li>– Shattered kidney with loss of identifiable parenchymal renal anatomy</li> </ul>

Vascular injury is defined as a pseudoaneurysm or arteriovenous fistula and appears as a focal collection of vascular contrast that decreases in attenuation with delayed imaging. Active bleeding from a vascular injury presents as vascular contrast, focal or diffuse, that increases in size or attenuation in delayed phase. Vascular thrombosis can lead to organ infarction. Grade based on highest grade assessment made on imaging, at operation or on pathologic specimen. More than one grade of kidney injury may be present and should be classified by the higher grade of injury. Advance one grade for bilateral injuries up to Grade III.