

**American College of Radiology
ACR Appropriateness Criteria®**

Radiologic Management of Portal Hypertension

Variant 1: Acute variceal bleeding. Child-Pugh class A, cirrhotic with index bleed from acute esophageal variceal hemorrhage, MELD 10, no encephalopathy. Initial therapy.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Endoscopic management	Usually appropriate	Strong	N/A	N/A	9	9	0	0	0	0	0	0	1	2	9
			References	Study Quality											
			30 (26047908)	4											
			32 (7635414)	1											
			33 (10430341)	1											
			34 (9222662)	4											
			35 (16127560)	1											
			36 (21084988)	1											
			37 (16904224)	1											
			38 (7611595)	M											
			31 (19386609)	1											
			39 (16534680)	1											
			40 (10576359)	4											
			41 (12143259)	2											
Medical therapy with vasoactive drugs	Usually appropriate	Strong	N/A	N/A	9	9	0	0	0	1	0	0	0	2	9
			References	Study Quality											
			27 (25788386)	M											
			21 (9388396)	1											

22 (11136956)	1
23 (22447260)	4
24 (7564670)	1
25 (10421644)	1
26 (11870374)	M
28 (12076458)	4
29 (21707680)	Not Assessed

Transjugular intrahepatic portosystemic shunt	Usually not appropriate	Limited	N/A	N/A	3	3	0	6	6	0	0	0	0	0	0
---	-------------------------	---------	-----	-----	---	---	---	---	---	---	---	---	---	---	---

References	Study Quality
30 (26047908)	4

Surgical shunt	Usually not appropriate	Limited	N/A	N/A	2	2	0	8	2	1	1	0	0	0	0
----------------	-------------------------	---------	-----	-----	---	---	---	---	---	---	---	---	---	---	---

References	Study Quality
42 (7601427)	4
43 (7484994)	1

Coated esophageal self-expandable metal stent	Usually not appropriate	Expert Consensus	N/A	N/A	1	1	7	4	0	1	0	0	0	0	0
---	-------------------------	------------------	-----	-----	---	---	---	---	---	---	---	---	---	---	---

Variant 2: Acute variceal bleeding. Child-Pugh class B, cirrhotic with active esophageal variceal hemorrhage, MELD 12, previously treated with octreotide and variceal ligation (EVL) on three prior occasions, no encephalopathy.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Endoscopic management	Usually appropriate	Strong	N/A	N/A	8	8	0	0	0	0	0	1	2	6	2

References	Study Quality
31 (19386609)	1
39 (16534680)	1
40 (10576359)	4

67 (23517374)	4
69 (11171831)	1
58 (20573925)	1
66 (22940408)	2
62 (17617116)	1
63 (19097918)	2

Surgical shunt	May be appropriate	Strong	N/A	N/A	4	4	0	1	3	3	2	2	0	0	0
----------------	--------------------	--------	-----	-----	---	---	---	---	---	---	---	---	---	---	---

References	Study Quality
47 (16697728)	1
42 (7601427)	4
44 (3527852)	4
45 ()	4
46 (22463885)	1
48 (20726417)	M

Coated esophageal self-expandable metal stent	Usually not appropriate	Expert Consensus	N/A	N/A	1	1	6	2	0	3	0	0	0	0	0
---	-------------------------	------------------	-----	-----	---	---	---	---	---	---	---	---	---	---	---

Variant 3: Acute variceal bleeding. Child-Pugh class C, cirrhotic with active esophageal and junctional variceal hemorrhage, previously treated with octreotide and endoscopic sclerotherapy, MELD 17, intermittent mild hepatic encephalopathy managed as an outpatient with nutritional support.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Endoscopic management	Usually appropriate	Strong	N/A	N/A	8	8	0	0	0	0	0	1	1	7	2

References	Study Quality
31 (19386609)	1
39 (16534680)	1
40 (10576359)	4
41 (12143259)	2

Percutaneous transhepatic embolization	Usually appropriate	Expert Consensus	N/A	N/A	7	7	0	0	1	0	1	2	7	0	0
Transjugular intrahepatic portosystemic shunt	May be appropriate	Expert Consensus	N/A	N/A	5	5	0	0	0	0	7	5	0	0	0
Coated esophageal self-expandable metal stent	May be appropriate	Limited	N/A	N/A	5	5	0	0	1	2	3	5	0	0	0
		References			Study Quality										
		80 (22269340)			4										
		81 (23626509)			4										
		82 (19879564)			4										
		83 (23828748)			4										
		84 (18622540)			4										
Surgical shunt	Usually not appropriate	Expert Consensus	N/A	N/A	3	3	2	3	5	1	0	0	0	0	0

Variant 5: Ascites. Initial therapy for Child-Pugh class B cirrhotic asymptomatic patient with small-volume ascites.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Medical therapy and dietary modification	Usually appropriate	Expert Consensus	N/A	N/A	9	9	0	0	0	0	0	0	1	3	8
Large-volume paracentesis	Usually not appropriate	Expert Opinion	N/A	N/A	3	3	0	3	6	2	1	0	0	0	0
Volume expansion	Usually not appropriate	Expert Consensus	N/A	N/A	3	3	0	4	5	0	2	1	0	0	0
Transjugular intrahepatic portosystemic shunt	Usually not appropriate	Expert Consensus	N/A	N/A	2	2	1	10	1	0	0	0	0	0	0
Peritoneovenous shunt	Usually not appropriate	Expert Consensus	N/A	N/A	2	2	4	7	1	0	0	0	0	0	0

114 (12830009)	4
115 (19475696)	4
118 (3655306)	1
117 (3297907)	1
116 (24627607)	M

Volume expansion	Usually appropriate	Strong	N/A	N/A	7	7	0	0	0	1	1	2	4	3	0
------------------	---------------------	--------	-----	-----	---	---	---	---	---	---	---	---	---	---	---

References	Study Quality
127 (20492521)	4
119 (3360270)	1
120 (8119542)	2
121 (9247479)	2
122 (18410283)	1
123 (8831595)	1
124 (1699835)	1
125 (12717396)	1
126 (16420509)	1
128 (18251131)	1
129 (11772973)	1
130 (16460491)	1
131 (18547224)	1

Peritoneovenous shunt	Usually not appropriate	Strong	N/A	N/A	3	3	1	2	6	0	1	1	0	0	0
-----------------------	-------------------------	--------	-----	-----	---	---	---	---	---	---	---	---	---	---	---

References	Study Quality
113 (1875966)	1
138 (4415019)	4
139 (22997394)	4
140 (17278034)	4
141 (16181832)	4
142 (1736394)	4
143 (15166968)	1

122 (18410283)	1
123 (8831595)	1
124 (1699835)	1
125 (12717396)	1
126 (16420509)	1
128 (18251131)	1
129 (11772973)	1
130 (16460491)	1
131 (18547224)	1

Peritoneovenous shunt	Usually not appropriate	Strong	N/A	N/A	3	3	2	2	5	0	1	1	0	0	0
-----------------------	-------------------------	--------	-----	-----	---	---	---	---	---	---	---	---	---	---	---

References	Study Quality
113 (1875966)	1
140 (17278034)	4
141 (16181832)	4
142 (1736394)	4
143 (15166968)	1
144 (11376582)	4
166 (3537462)	1

Appendix Key

A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

Appropriateness Category: The panel's recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

SOE: Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References:** The citation number and PMID for the reference(s) associated with the recommendation.
- **Study Quality:** The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

RRL: Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

Rating: The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Median: The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Final tabulations: A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at www.acr.org/ac.