American College of Radiology
ACR Appropriateness Criteria®

Diplopia

Variant 1: Traumatic visual defect. Suspect orbital injury. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT orbits without IV contrast	Usually appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	9	9	0	0	0	1	0	0	0	2	14

References	Study Quality
10 (22964404)	4
16 (27262056)	4
7 (21326128)	4
14 (10726796)	2
12 (24694248)	3
11 (24614544)	4
9 (21772209)	4
13 (22698295)	3
15 (23287107)	3

CT head without IV contrast	Usually appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	7	7	0	1	0	0	3	3	10	2	0

References	Study Quality
10 (22964404)	4
16 (27262056)	4
7 (21326128)	4
14 (10726796)	2
12 (24694248)	3

		11 (24614544)	4												
		9 (21772209)	4												
		13 (22698295)	3												
		15 (23287107)	3												
MRI orbits without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	5	2	8	2	2	0
		References	Study Quality												
		16 (27262056)	4												
		17 (25882280)	2												
MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	1	3	1	2	12	0	0	0
		References	Study Quality												
		17 (25882280)	2												
MRI orbits without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	2	0	1	3	4	5	4	0	0
		References	Study Quality												
		16 (27262056)	4												
		17 (25882280)	2												
CT orbits with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	2	0	5	2	2	6	1	1	0
		References	Study Quality												
		10 (22964404)	4												
		16 (27262056)	4												
		7 (21326128)	4												
		14 (10726796)	2												
		12 (24694248)	3												
		11 (24614544)	4												
		9 (21772209)	4												
		13 (22698295)	3												
		15 (23287107)	3												

MRI head without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	2	1	4	1	10	1	0	0	0
CTA head and neck with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	1	0	2	2	5	8	1	0	0
MRA head and neck without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	2	0	5	5	6	1	0	0	0
MRA head and neck without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	2	0	5	3	8	1	0	0	0
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	3	2	11	2	0	1	0	0	0

References	Study Quality
16 (27262056)	4

Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	8	1	9	0	1	0	0	0	0
Radiography orbit	Usually not appropriate	Strong	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	10	3	2	0	1	0	1	0	0

References	Study Quality
10 (22964404)	4
16 (27262056)	4
7 (21326128)	4
14 (10726796)	2
12 (24694248)	3
11 (24614544)	4
9 (21772209)	4
13 (22698295)	3
15 (23287107)	3

CT orbits without and with IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	10	1	6	2	0	0	0	0	0

References	Study Quality

References	Study Quality
10 (22964404)	4
16 (27262056)	4
7 (21326128)	4
14 (10726796)	2
12 (24694248)	3
11 (24614544)	4
9 (21772209)	4
13 (22698295)	3
15 (23287107)	3

CT head without and with IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	3	6	0	0	0	0	0	0

References	Study Quality
10 (22964404)	4
16 (27262056)	4
7 (21326128)	4
14 (10726796)	2
12 (24694248)	3
11 (24614544)	4
9 (21772209)	4
13 (22698295)	3
15 (23287107)	3

Variant 2: Nontraumatic orbital asymmetry, exophthalmos, or enophthalmos. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI orbits without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	6	11

References	Study Quality
61 (23975080)	4

		7 (21326128)		4												
		59 (25248586)		4												
		2 (15531324)		4												
		60 (25348417)		4												
CT orbits with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	8	8	0	0	0	0	0	1	6	5	5
CT orbits without IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	6	6	0	0	0	1	2	6	1	3	4
CTA head and neck with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	2	3	9	2	1	0
		References		Study Quality												
		36 (18356442)		4												
		35 (18071114)		4												
MRA head and neck without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	1	5	5	3	2	0
		References		Study Quality												
		36 (18356442)		4												
		35 (18071114)		4												
MRI head without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	1	0	1	6	11	0	0	0
MRI orbits without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	1	4	11	2	0	0
		References		Study Quality												
		29 (14746934)		4												
		27 (870165)		4												
		28 (9884691)		4												
MRA head and neck without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	0	4	1	3	7	4	0	0	0
		References		Study Quality												

		36 (18356442)		4												
		35 (18071114)		4												
MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	2	0	0	6	6	5	0	0	0
		References		Study Quality												
		7 (21326128)		4												
Arteriography cervicocerebral	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	4	4	0	4	5	8	2	0	0	0	0
		References		Study Quality												
		36 (18356442)		4												
		35 (18071114)		4												
CT head with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	4	4	0	3	0	10	5	1	0	0	0
CT head without IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	4	4	1	3	1	7	6	1	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	6	4	3	4	1	1	0	0	0
Radiography orbit	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	16	0	0	0	1	0	0	0	0
CT orbits without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	9	6	2	0	0	0	0	0	0
		References		Study Quality												
		7 (21326128)		4												
		34 (25448997)		4												
		32 (21786273)		3												
		33 (22709420)		3												

Variant 3: Suspected orbital cellulitis, uveitis, or scleritis. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT orbits with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	9	9	0	0	0	0	0	1	4	0	12

References	Study Quality
7 (21326128)	4
42 (19221728)	4
43 (19016810)	4
2 (15531324)	4
46 (24298218)	4
44 (23053380)	4
45 (24924283)	3
38 (5470225)	4

MRI orbits without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	0	2	10	5

References	Study Quality
47 (22182506)	3
42 (19221728)	4
40 (23759440)	4
43 (19016810)	4
2 (15531324)	4
41 (21482868)	4
46 (24298218)	4
39 (22963447)	M

CT orbits without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	6	6	0	0	0	3	5	10	1	0	0

References	Study Quality
7 (21326128)	4
42 (19221728)	4

		43 (19016810)		4											
		2 (15531324)		4											
		46 (24298218)		4											
		44 (23053380)		4											
		45 (24924283)		3											
		38 (5470225)		4											
MRI head without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	1	1	0	7	9	1	0	0
		References		Study Quality											
		47 (22182506)		3											
		40 (23759440)		4											
		41 (21482868)		4											
		46 (24298218)		4											
		39 (22963447)		M											
MRI orbits without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	1	5	9	4	0	0
		References		Study Quality											
		47 (22182506)		3											
		42 (19221728)		4											
		40 (23759440)		4											
		43 (19016810)		4											
		2 (15531324)		4											
		41 (21482868)		4											
		46 (24298218)		4											
		39 (22963447)		M											
CTA head and neck with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	1	2	3	3	9	1	0	0	0
MRA head and neck without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	0	2	3	3	10	1	0	0	0

MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	1	1	6	8	3	0	0	0

References	Study Quality
47 (22182506)	3
42 (19221728)	4
40 (23759440)	4
43 (19016810)	4
2 (15531324)	4
41 (21482868)	4
46 (24298218)	4
39 (22963447)	M

CT head with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	4	4	0	2	3	8	5	1	0	0	0

References	Study Quality
7 (21326128)	4
42 (19221728)	4
48 (21546008)	4
43 (19016810)	4
2 (15531324)	4
46 (24298218)	4
44 (23053380)	4
45 (24924283)	3
38 (5470225)	4

MRA head and neck without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	0	5	2	9	3	0	0	0	0
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	3	4	7	1	2	0	0	0	0
CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	2	3	7	5	1	1	0	0	0

References	Study Quality

CT orbits without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	7	2	3	1	5	1	0	0	0
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	7	5	6	1	0	0	0	0	0

References	Study Quality
7 (21326128)	4
42 (19221728)	4
48 (21546008)	4
43 (19016810)	4
2 (15531324)	4
46 (24298218)	4
44 (23053380)	4
45 (24924283)	3
38 (5470225)	4

References	Study Quality
7 (21326128)	4
47 (22182506)	3
42 (19221728)	4
43 (19016810)	4
2 (15531324)	4
46 (24298218)	4
44 (23053380)	4
45 (24924283)	3
38 (5470225)	4

References	Study Quality
7 (21326128)	4
42 (19221728)	4
48 (21546008)	4
43 (19016810)	4
2 (15531324)	4
46 (24298218)	4

44 (23053380)	4
45 (24924283)	3
38 (5470225)	4

Radiography orbit	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	16	0	1	0	0	0	0	0	0

Variant 4: Suspected optic neuritis. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI orbits without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	2	15

References	Study Quality
47 (22182506)	3
42 (19221728)	4
48 (21546008)	4
40 (23759440)	4
43 (19016810)	4
2 (15531324)	4
41 (21482868)	4
46 (24298218)	4
39 (22963447)	M

MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	1	0	3	5	8

References	Study Quality
47 (22182506)	3
42 (19221728)	4
40 (23759440)	4
43 (19016810)	4
2 (15531324)	4

		41 (21482868)	4												
		46 (24298218)	4												
		39 (22963447)	M												
MRI orbits without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	1	3	4	6	3	0
		References	Study Quality												
		47 (22182506)	3												
		42 (19221728)	4												
		48 (21546008)	4												
		40 (23759440)	4												
		43 (19016810)	4												
		2 (15531324)	4												
		41 (21482868)	4												
		46 (24298218)	4												
		39 (22963447)	M												
MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	1	0	0	0	4	4	6	2	0
		References	Study Quality												
		47 (22182506)	3												
		42 (19221728)	4												
		40 (23759440)	4												
		43 (19016810)	4												
		2 (15531324)	4												
		41 (21482868)	4												
		46 (24298218)	4												
		39 (22963447)	M												
CT orbits with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	6	2	2	3	2	2	0	0	0
		References	Study Quality												
		7 (21326128)	4												
		42 (19221728)	4												

		43 (19016810)	4												
		2 (15531324)	4												
		46 (24298218)	4												
		44 (23053380)	4												
		45 (24924283)	3												
		38 (5470225)	4												
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	6	3	2	3	1	2	0	0	0
		References	Study Quality												
		7 (21326128)	4												
		47 (22182506)	3												
		42 (19221728)	4												
		43 (19016810)	4												
		46 (24298218)	4												
		44 (23053380)	4												
		45 (24924283)	3												
		38 (5470225)	4												
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	7	3	3	2	1	1	0	0	0
		References	Study Quality												
		7 (21326128)	4												
		42 (19221728)	4												
		43 (19016810)	4												
		2 (15531324)	4												
		46 (24298218)	4												
		44 (23053380)	4												
		45 (24924283)	3												
		38 (5470225)	4												
CT orbits without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	7	2	3	3	1	1	0	0	0

References	Study Quality
7 (21326128)	4
42 (19221728)	4
43 (19016810)	4
2 (15531324)	4
46 (24298218)	4
44 (23053380)	4
45 (24924283)	3
38 (5470225)	4

CT orbits without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	6	4	3	3	0	0	1	0	0

References	Study Quality
7 (21326128)	4
42 (19221728)	4
48 (21546008)	4
43 (19016810)	4
2 (15531324)	4
46 (24298218)	4
44 (23053380)	4
45 (24924283)	3

CTA head and neck with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	5	3	1	0	0	0	0	0
MRA head and neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	8	5	3	1	0	0	0	0	0
MRA head and neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	8	6	2	1	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	6	5	3	4	1	0	0	0	0

References	Study Quality
7 (21326128)	4

47 (22182506)	3
42 (19221728)	4
43 (19016810)	4
2 (15531324)	4
46 (24298218)	4
44 (23053380)	4
45 (24924283)	3
38 (5470225)	4

Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	0	1	0	0	0	0	0
Radiography orbit	Usually not appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	16	0	1	0	0	0	0	0	0

References	Study Quality
49 (12820855)	2

Variant 5: Visual loss. Etiology identified on ophthalmologic examination or laboratory tests.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI orbits without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	7	0	2	2	5	0	1	0	0

References	Study Quality
56 (21959626)	4

CT head without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	8	2	2	2	2	0	0	1	0
CT orbits without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	8	1	3	2	2	0	0	1	0
MRI head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	2	0	3	3	1	1	0	0

		References		Study Quality												
		56 (21959626)		4												
MRI orbits without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	8	5	4	1	1	0	0	0	0
		References		Study Quality												
		56 (21959626)		4												
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	2	1	1	0	0	0	0	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	9	2	2	2	1	0	1	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	9	3	3	0	1	1	0	0	0
CT orbits without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	9	2	1	1	3	1	0	0	0
CTA head and neck with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	9	5	2	0	0	0	1	0	0
MRA head and neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	5	2	0	0	0	1	0	0
MRA head and neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	6	1	0	0	0	1	0	0
Radiography orbit	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	16	0	0	1	0	0	0	0	0
CT orbits with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	11	3	4	1	0	0	0	0	0
MRI head without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	11	6	2	0	0	0	0	0	0
		References		Study Quality												
		56 (21959626)		4												

Variant 6: Visual loss. Intraocular mass,optic nerve, or pre-chiasm symptoms. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI orbits without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	1	0	1	17
References			Study Quality												
7 (21326128)			4												
1 (22284056)			4												
58 (27843906)			4												
CT orbits with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	7	7	0	0	0	0	2	4	5	5	3
References			Study Quality												
7 (21326128)			4												
43 (19016810)			4												
2 (15531324)			4												
MRI orbits without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	1	0	0	4	12	2	0
References			Study Quality												
7 (21326128)			4												
1 (22284056)			4												
58 (27843906)			4												
CT orbits without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	6	6	0	0	0	3	1	12	3	0	0
References			Study Quality												
7 (21326128)			4												
43 (19016810)			4												
2 (15531324)			4												

MRI head without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	1	0	0	2	2	12	1	0	1

References	Study Quality
7 (21326128)	4
1 (22284056)	4
58 (27843906)	4

MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	0	1	5	9	2	1	0	0

References	Study Quality
7 (21326128)	4
1 (22284056)	4
58 (27843906)	4

CT head with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	0	1	1	3	11	1	0	0	0

References	Study Quality
7 (21326128)	4
43 (19016810)	4
2 (15531324)	4

CT head without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	4	4	0	1	3	7	6	2	0	0	0

References	Study Quality
7 (21326128)	4
43 (19016810)	4
2 (15531324)	4

CTA head and neck with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	4	4	1	0	4	5	7	1	1	0	0

References	Study Quality
36 (18356442)	4
35 (18071114)	4

MRA head and neck without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	1	1	5	6	1	4	1	0	0

References	Study Quality
36 (18356442)	4
35 (18071114)	4

MRA head and neck without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	1	3	2	9	3	1	0	0	0

References	Study Quality
36 (18356442)	4
35 (18071114)	4

Arteriography cervicocerebral	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	7	5	5	1	1	0	0	0	0

References	Study Quality
36 (18356442)	4
35 (18071114)	4

CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	7	3	4	2	2	0	1	0	0

References	Study Quality
7 (21326128)	4
43 (19016810)	4
2 (15531324)	4

Radiography orbit	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	18	1	0	0	0	0	0	0	0
CT orbits without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	9	3	5	0	0	0	0	0	0

References	Study Quality
7 (21326128)	4
43 (19016810)	4
2 (15531324)	4

Variant 7: Nonischemic visual loss. Chiasm or post-chiasm symptoms. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	1	4	14
References				Study Quality											
61 (23975080)				4											
59 (25248586)				4											
43 (19016810)				4											
2 (15531324)				4											
60 (25348417)				4											
MRI head without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	1	4	10	4	0
References				Study Quality											
61 (23975080)				4											
59 (25248586)				4											
43 (19016810)				4											
2 (15531324)				4											
60 (25348417)				4											
CT head with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	1	0	0	2	7	3	4	2	0
References				Study Quality											
7 (21326128)				4											
59 (25248586)				4											
62 (27213742)				3											
CT head without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	1	0	0	5	4	3	5	1	0
References				Study Quality											

		7 (21326128)		4												
		59 (25248586)		4												
		62 (27213742)		3												
CTA head and neck with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	1	1	3	6	6	2	0	0
MRA head and neck without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	6	5	6	1	0	1
		References		Study Quality												
		36 (18356442)		4												
		35 (18071114)		4												
CT head without and with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	1	0	2	3	11	0	0	0	0
		References		Study Quality												
		7 (21326128)		4												
		59 (25248586)		4												
		62 (27213742)		3												
CTV head with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	4	4	0	2	3	5	3	6	0	0	0
MRV head without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	1	4	1	7	4	2	0	0	0
MRV head without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	0	3	3	3	8	0	0	0	0
MRA head and neck without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	0	3	2	5	7	0	0	0	0
		References		Study Quality												
		36 (18356442)		4												
		35 (18071114)		4												
CT orbits with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	5	3	4	4	1	1	0	0	1

CT orbits without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	7	2	5	2	2	0	1	0	0
MRI orbits without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	4	2	10	0	1	0	0	0	0
MRI orbits without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	5	1	10	1	0	0	0	0	0
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	7	4	4	2	2	0	0	0	0
CT orbits without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	8	3	6	1	0	1	0	0	0
Radiography orbit	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	18	1	0	0	0	0	0	0	0

Variant 8: Ophthalmoplegia or diplopia. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	3	4	10

References	Study Quality
1 (22284056)	4
43 (19016810)	4
2 (15531324)	4
68 (27448831)	3
67 (27768791)	3

MRI orbits without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	1	3	13

References	Study Quality

		1 (22284056)		4												
		43 (19016810)		4												
		2 (15531324)		4												
		68 (27448831)		3												
		67 (27768791)		3												
CT orbits with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	7	7	0	0	0	0	2	3	4	3	5
		References		Study Quality												
		43 (19016810)		4												
MRI orbits without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	1	1	6	7	2	0
		References		Study Quality												
		1 (22284056)		4												
		43 (19016810)		4												
		2 (15531324)		4												
		68 (27448831)		3												
		67 (27768791)		3												
MRI head without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	2	0	1	6	7	1	0
		References		Study Quality												
		1 (22284056)		4												
		43 (19016810)		4												
		2 (15531324)		4												
		68 (27448831)		3												
		67 (27768791)		3												
CT orbits without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	6	6	0	0	1	2	4	11	1	0	0
		References		Study Quality												
		43 (19016810)		4												

CTA head and neck with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	1	1	4	13	0	0	0
	References			Study Quality											
	69 (11918895)			4											
MRA head and neck without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	1	4	13	0	0	0
	References			Study Quality											
	69 (11918895)			4											
MRA head and neck without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	2	4	12	0	0	0
	References			Study Quality											
	69 (11918895)			4											
CT head with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	0	0	1	4	12	2	0	0	0
	References			Study Quality											
	43 (19016810)			4											
CT head without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	0	0	0	6	12	1	0	0	0
	References			Study Quality											
	43 (19016810)			4											
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	3	1	5	4	3	1	0	0	0
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	7	2	7	2	1	0	0	0	0
	References			Study Quality											
	43 (19016810)			4											
Radiography orbit	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	16	0	1	0	0	0	0	0	0

CT orbits without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	9	3	4	1	0	0	0	0	0

References	Study Quality
43 (19016810)	4

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.**