

Contents

1	Introduction to Radiology	1
1.1	Plain Film Radiographs and Fluoroscopy	1
1.2	Computed Tomography	1
1.3	Magnetic Resonance Imaging	2
1.4	Ultrasound	2
1.5	Nuclear Medicine	3
1.6	Book Overview	3
2	Head and Neck	5
2.1	Sphenopalatine Nerve Block	5
2.1.1	Anatomy	5
2.1.2	Cross-Sectional Anatomy: Lateral Approach	6
2.1.3	Indications	8
2.1.4	Contraindications	9
2.1.5	Complications	10
2.2	Maxillary and Mandibular Nerve Block	10
2.2.1	Maxillary Nerve Block	10
2.2.2	Mandibular Nerve Block	14
2.2.3	Imaging/Radiology for Both Maxillary and Mandibular Nerve Blocks	15
2.3	Trigeminal Ganglion Block: Trigeminal (Gasserian) Ganglion Block for Trigeminal Neuralgia (Tic Douloureux)	17
2.3.1	Anatomy	17
2.3.2	Function	17
2.3.3	Clinical Presentation	18
2.3.4	Etiology	18
2.3.5	Differential Diagnosis	18
2.3.6	Injection Site	18
2.3.7	Cross-Sectional Anatomy	18
2.3.8	Indications	20
2.3.9	Complications	21
2.4	Occipital Nerve Block: For Occipital Neuralgia	22
2.4.1	Anatomy	22
2.4.2	Function	22
2.4.3	Clinical Presentation	22
2.4.4	Etiology	23

2.4.5	Differential Diagnoses	23
2.4.6	Injection Site	23
2.4.7	Cross-Sectional Anatomy	23
2.4.8	Indications	24
2.4.9	Contraindications	25
2.4.10	Complications	25
2.5	Cervical Plexus Blockade	25
2.5.1	Anatomy	25
2.5.2	Function.	26
2.5.3	Injection Site	26
2.5.4	Cross-Sectional Anatomy: Superficial Cervical Plexus Block	26
2.5.5	Cross-Sectional Anatomy: Deep Cervical Plexus Block Lateral Approach.	27
2.5.6	Cross-Sectional Anatomy: Deep Cervical Plexus Block Posterior Approach	29
2.5.7	Imaging/Radiology	29
2.5.8	Indications	30
2.5.9	Contraindications	31
2.5.10	Complications	31
2.6	Stellate Ganglion Block	31
2.6.1	Anatomy	31
2.6.2	Function.	31
2.6.3	Injection Site	31
2.6.4	Cross-Sectional Anatomy: Anterior Approach	31
2.6.5	Indications	33
2.6.6	Contraindications	35
2.6.7	Complications	35
2.7	Brachial Plexus Block: For Brachial Plexopathy	35
2.7.1	Anatomy	35
2.7.2	Function.	35
2.7.3	Clinical Presentation	36
2.7.4	Etiology	36
2.7.5	Differential Diagnosis	36
2.7.6	Injection Site	36
2.7.7	Cross-Sectional Anatomy: Interscalene Approach	37
2.7.8	Imaging/Radiology	39
2.7.9	Indications	39
2.7.10	Complications	39
2.7.11	Contraindications	40
	References	40
3	Thorax	43
3.1	Thoracic Sympathetic Ganglion Block	43
3.1.1	Anatomy	43
3.1.2	Function.	43
3.1.3	Injection Site	43
3.1.4	Cross-Sectional Anatomy	44

3.1.5	Imaging/Radiology	44
3.1.6	Indications	45
3.1.7	Complications	45
3.2	Intercostal Nerve Block: For Intercostal Neuralgia	46
3.2.1	Anatomy	46
3.2.2	Function.	47
3.2.3	Clinical Presentation	47
3.2.4	Etiology	47
3.2.5	Injection Site	47
3.2.6	Cross-Sectional Anatomy	49
3.2.7	Imaging/Radiology	49
3.2.8	Indications	49
3.2.9	Contraindications	50
3.2.10	Complications	50
3.3	Suprascapular Nerve Block.	51
3.3.1	Anatomy	51
3.3.2	Function.	51
3.3.3	Clinical Presentation	51
3.3.4	Etiology	51
3.3.5	Differential Diagnosis	51
3.3.6	Injection Site	51
3.3.7	Cross-Sectional Anatomy	52
3.3.8	Imaging/Radiology	52
3.3.9	Indications	52
3.3.10	Complications	55
	References	55
4	Abdomen	57
4.1	Celiac Plexus Block and Splanchnic Nerve Block	57
4.1.1	Anatomy	57
4.1.2	Function.	58
4.1.3	Injection Site	58
4.1.4	Cross-Sectional Anatomy Associated with the Needle Tract–Transaortic Approach	58
4.1.5	Imaging/Radiology	61
4.1.6	Indications	62
4.1.7	Contraindications	62
4.1.8	Complications	62
4.2	Lumbar Sympathetic Block.	63
4.2.1	Anatomy	63
4.2.2	Function.	63
4.2.3	Injection Site	63
4.2.4	Cross-Sectional Anatomy	63
4.2.5	Imaging/Radiology	64
4.2.6	Indications	66
4.2.7	Contraindications	67
4.2.8	Complications	67
	References	68

5 Pelvis	69
5.1 Hypogastric Plexus Block	70
5.1.1 Anatomy	70
5.1.2 Function	70
5.1.3 Injection Site	70
5.1.4 Radiologic Anatomy	70
5.1.5 Cross-Sectional Anatomy	70
5.1.6 Imaging/Radiology	70
5.1.7 Indications	71
5.1.8 Contraindications	73
5.1.9 Complications	73
5.2 Ganglion Impar Block	73
5.2.1 Anatomy	73
5.2.2 Function	74
5.2.3 Injection Site	74
5.2.4 Cross-Sectional Anatomy	74
5.2.5 Imaging/Radiology	74
5.2.6 Indications	75
5.2.7 Complications	75
5.3 Sciatic Nerve Block	75
5.3.1 Anatomy	75
5.3.2 Function	75
5.3.3 Injection Site	76
5.3.4 Cross-Sectional Anatomy	77
5.3.5 Imaging/Radiology	77
5.3.6 Indications	78
5.4 Piriformis Muscle Injection	79
5.4.1 Anatomy	79
5.4.2 Function	80
5.4.3 Clinical Presentation	80
5.4.4 Etiology	80
5.4.5 Differential Diagnosis	80
5.4.6 Injection Site	80
5.4.7 Cross-Sectional Anatomy	81
5.4.8 Imaging/Radiology	81
5.4.9 Indications	81
5.4.10 Complications	81
5.5 Internal Pudendal Nerve Block	82
5.5.1 Anatomy	82
5.5.2 Function	82
5.5.3 Clinical Presentation	82
5.5.4 Etiology	82
5.5.5 Differential Diagnosis	82
5.5.6 Injection Site	82
5.5.7 Cross-Sectional Anatomy	83
5.5.8 Imaging/Radiology	83
5.5.9 Indications	84
5.5.10 Complications	84

5.6	Iliohypogastric–Ilioinguinal Nerve Block	84
5.6.1	Iliohypogastric Nerve Injection	84
5.6.2	Ilioinguinal Nerve Injection	86
5.6.3	Cross-Sectional Anatomy (Iliohypogastric–Ilioinguinal Nerve).	88
5.6.4	Imaging/Radiology	88
5.6.5	Indications	89
5.7	Genitofemoral Nerve Block	90
5.7.1	Anatomy	90
5.7.2	Function	90
5.7.3	Clinical Presentation	90
5.7.4	Etiology	90
5.7.5	Differential Diagnosis	90
5.7.6	Injection Site	90
5.7.7	Cross-Sectional Anatomy	91
5.7.8	Imaging/Radiology	91
5.7.9	Indications	91
5.7.10	Complications	91
5.8	Lateral Femoral Cutaneous Nerve Block	92
5.8.1	Anatomy	92
5.8.2	Function	92
5.8.3	Clinical Presentation	93
5.8.4	Etiology	93
5.8.5	Differential Diagnosis	93
5.8.6	Injection Site	93
5.8.7	Imaging/Radiology	93
5.8.8	Indications	93
5.8.9	Complications	94
	References	94
6	Extremities: General Overview	97
6.1	Radiology of the Extremities	97
6.1.1	Plain Film Radiographs	97
6.1.2	Ultrasound	97
6.1.3	Computed Tomography	98
6.1.4	Magnetic Resonance Imaging	98
6.1.5	Bone Scan	98
6.2	Structures	99
6.2.1	Joints	99
6.2.2	Tendons	100
6.2.3	Nerves	102
6.2.4	Bursae	103
6.3	Contraindications	103
	References	103
7	Upper Extremity	105
7.1	Introduction	105
7.1.1	Plain Film Radiographs	105
7.1.2	Bone Scan	105

7.1.3	Ultrasound	105
7.1.4	CT	105
7.1.5	MRI	105
7.1.6	Major Pathology to Exclude (Contraindication to Injection)	106
7.1.7	Complications in the Upper Extremity	106
7.2	Upper Extremity Joints, Bursae, and Tendons	106
7.2.1	Shoulder	106
7.2.2	Elbow and Surrounding Structures	121
7.2.3	Wrist, Hand, and Fingers	129
7.3	Upper Extremity Nerves	141
7.3.1	Brachial Plexus Block (Axillary Approach)	141
7.3.2	Musculocutaneous Nerve	144
7.3.3	Radial Nerve	145
7.3.4	Ulnar Nerve	148
7.3.5	Median Nerve	153
	References	157
8	Lower Extremity	161
8.1	Introduction	161
8.1.1	Plain Film Radiographs	161
8.1.2	Bone Scan	161
8.1.3	Ultrasound	161
8.1.4	CT	161
8.1.5	MRI	161
8.1.6	Major Clinical Scenarios to Exclude	162
8.1.7	Complications of Injections in the Lower Extremity	162
8.2	Lower Extremity Joints, Bursae, and Tendons	162
8.2.1	Hip and Surrounding Structures	162
8.2.2	Knee and Surrounding Structures	176
8.2.3	Ankle and Foot	189
8.3	Lower Extremity Nerve Blocks	198
8.3.1	Obturator Nerve Block	198
8.3.2	Femoral Nerve Injection	200
8.3.3	Saphenous Nerve Injection	202
8.3.4	Sciatic Nerve Injection in the Popliteal Fossa	205
8.3.5	Common Peroneal Nerve Block	205
8.3.6	Injection of the Superficial Peroneal Nerve (for Superficial Peroneal Tunnel Syndrome)	208
8.3.7	Injection of the Deep Peroneal Nerve (Anterior Tarsal Tunnel Syndrome)	209
8.3.8	Injection of the Sural Nerve	211
8.3.9	Posterior Tibial Nerve Injection (Tarsal Tunnel)	212
8.3.10	Injection of the Interdigital Nerves for Morton's Neuroma	214
	References	215
	Index	219