## **Contents**

1.	History of Cone Beam Computed Tomography Sushma P Jaju	1
	Development of CBCT Machine 2	
2.	Cone Beam Computed Tomography: Physics and Artifacts  Prashant P Jaju	4
	Fundamental Principles of CT 4 Image Acquisition in CBCT 4 Field of View 8 Image Quality 8 Artifacts in CBCT 10 Radiation Dose 14	
3.	Need of Cone Beam Computed Tomography in Dentistry  Prashant V Suvarna	16
	Limitation of Two-dimensional Imaging 16 Three-dimensional Imaging 16 X-ray Beam Limitation 17 Image Accuracy 17 Rapid Scan Time 17 Dose Reduction 17 Display Modes Unique to Maxillofacial Imaging 17 Reduced Image Artifact 17	
4.	Anatomical Landmarks on Cone Beam Computed Tomography Sushma P Jaju	19
	Visualization of CBCT Images 19  Maxillary Landmarks 19  Mandibular Landmarks 27	

5.	Role of Cone Beam Computed Tomography in Prosthodontics  Prashant P Jaju, Sushma P Jaju	34
	Cone Beam Computed Tomography in Dental Implantology 34 CBCT-guided Implant Surgery 40	
6.	Role of Cone Beam Computed Tomography in Orthodontics and Airway Analysis Avani Dixit Gandhi	44
	Cone Beam Computed Tomography in Orthodontia 44	
7.	Role of Cone Beam Computed Tomography in Endodontics and Caries Diagnosis Sushma P Jaju	60
	Cone Beam Computed Tomography in Endodontics 60 Cone Beam Computed Tomography in Caries Diagnosis 66	
8.	Role of Cone Beam Computed Tomography in Oral and Maxillofacial Pathologies  Prashant P Jaju	69
	CBCT in Oral Maxillofacial Surgery 69  Maxillofacial Trauma 70  CBCT in Maxillofacial Pathologies 72  CBCT in Oral Cancer and Osteradionecrosis 77  CBCT in Ears, Nose and Throat 81  CBCT in Salivary Gland Diseases 81	
9.	Role of Cone Beam Computed Tomography in Periodontal Disease  Pratik Dedhia	86
	CBCT in Assessment of Periodontal Ligament Space 86 CBCT for Periodontal Defect Measurements 86 Soft Tissue CBCT for the Measurement of Gingival Tissue and the Dimensions of the Dentogingival Unit 87 CBCT Precision in Alveolar Bone Density Measurement 88 CBCT in Guided Tissue Regeneration Therapy 88	
10.	. Future of Cone Beam Computed Tomography  Yoshinori Arai, Prashant P Jaju	91
	Digital Imaging and Communication in Medicine 91 Software Improvements 94 Future of Cone Beam Computed Tomography Machines 95	

	Contents XV
11. Role of Cone Beam Computed Tomography in Forensic Odontology  Sushma P Jaju	
CBCT in Dental Age Estimation 98  CBCT in Sexual Dimorphism 99  CBCT in Facial Approximation 99	
12. Limitations of Cone Beam Computed Tomography  Prashant P Jaju	101
Poor Soft Tissue Contrast 101 Lack of Precise Hounsfield Values 101 Radiation Dose 101 Dental Caries 102 Cost of Scans 102	
Glossary	103
Index	111