Clinical Case Discussion in

As per CBME Guidelines | Competency Based Undergraduate | Curriculum for the Indian Medical Graduate

Early Clinical Exposure

Highlights_

- The book is written in simple and lucid language for quick, clear and easy understanding of the topics.
- First book in anatomy that makes anatomical basis of clinical conditions easier for better understanding and retention.
- Extensive coverage with more than 250 clinical cases.
- Clinical case presentation, which is followed by Case Based Questions (CBQs) along with their detailed explanations, helps the learner gain ability to answer such questions in the examination.

Ritesh Shah MBBS, MS

is currently Professor, Department of Anatomy, GCS Medical College, Hospital and Research Centre, Ahmedabad. He graduated in medicine from PS Medical College, Karamsad, and then joined Smt NHL Municipal Medical College as resident in anatomy in 2002 and completed his MS in 2005, He has been actively involved in teaching anatomy to undergraduate and postgraduate medical students for the past 19 years. His penchant for teaching has made him popular among his students. He is actively involved in research and has to his credit over 30 research papers published in various national and international journals. He is member of Society of Clinical Anatomists.

Ashok Nirvan MBBS, MS, DNB, PhD

is currently Associate Professor, Department of Anatomy, BJ Medical College, Ahmedabad. He graduated in medicine from PS Medical College, Karamsad, and then joined BJ Medical College, Ahmedabad, in 2002 completed his MS in 2003 and DNB in 2004. He has 20 years of teaching experience to both undergraduate and postgraduate students. He has to his credit over 20 research papers published in various national and international journals. He is member of Anatomical Society of India and Society of Clinical Anatomists.

Sanjay Kanani MBBS, MD

is currently Assistant Professor, Department of Anatomy, GMERS Medical College, Gandhinagar, He graduated in medicine from Government Medical College, Vadodara, in 2006; joined Smt NHL Municipal Medical College in 2008 and completed his postgraduation in 2011. He has more than 10 years experience of teaching anatomy to both undergraduate and postgraduate students. He has to his credit over 20 research papers published in various national and international journals. He is member of Anatomical Society of India and Society of Clinical Anatomists.



CBS Publishers & Distributors Pvt Ltd

4819/XI, Prahlad Street, 24 Ansari Road, Daryaganj, New Delhi 110 002, India E-mail: delhi@cbspd.com, cbspubs@airtelmail.in; Website: www.cbspd.com New Delhi | Bengaluru | Chennai | Kochi | Kolkata | Lucknow | Mumbai Hyderabad | Jharkhand | Nagpur | Patna | Pune | Uttarakhand





Nirvan



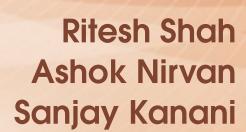
Clinical Case Discussion in Anatomy **Early Clinical Exposure**

As per CBME Guidelines **Competency Based Undergraduate Curriculum for the Indian Medical Graduate**







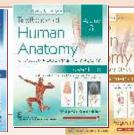




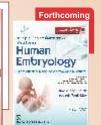
CBS Publishers & Distributors Pvt Ltd

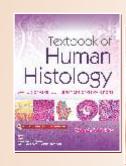
Other Outstanding CBS Books in Anatomy













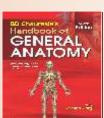






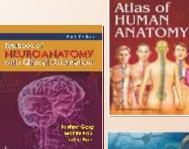
With free access to CBS App for videos on osteology and soft parts, frequently asked questions with answers and images from first edition of BDC Human Anatomy volumes 1–3:

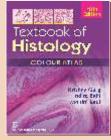
Videos on osteology and soft parts Frequently Asked Questions (FAQs) with their answers Images from 1st edition of BDC Human Anatomy (Vols 1-3)

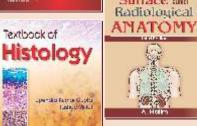




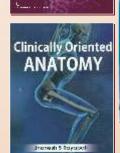


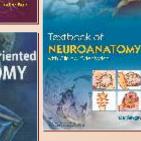


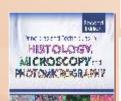




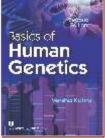


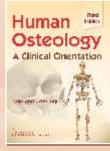


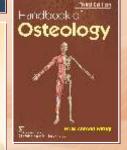




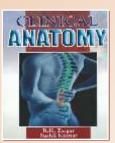


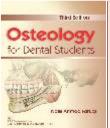


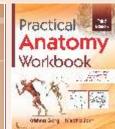


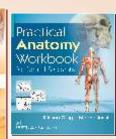


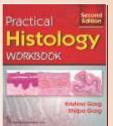
Other Outstanding CBS Books in Anatomy

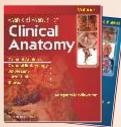


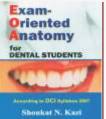


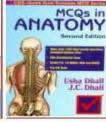


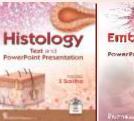


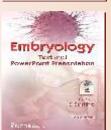


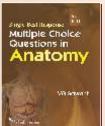


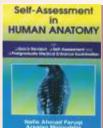




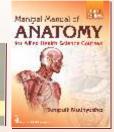


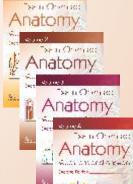




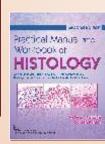


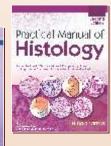














CBSPD Dedicated to Education

CBS Publishers & Distributors Pvt Ltd

CBS Plaza, 4819/XI Prahlad Street, 24 Ansari Road, Daryaganj, New Delhi 110 002, India. Ph: 23289259, 23266861/67, Fax: +91-11-23243014, Website: www.
Corporate Office: 204 FIE, Industrial Area, Patparganj, Delhi - 110 092, Ph: 4934 4934, Fax: 4934 4935, email: publishing@cbspd.com, publicity@cbspd.com

Clinical Case Discussion in Anatomy Early Clinical Exposure

As per CBME Guidelines | Competency Based Undergraduate Curriculum for the Indian Medical Graduate

With references to illustrations in BD Chaurasia's Human Anatomy, 8/e Vols 1-4

Clinical Case Discussion in Anatomy Early Clinical Exposure

As per CBME Guidelines | Competency Based Undergraduate Curriculum for the Indian Medical Graduate

Ritesh Shah MBBS, MS

Professor

Department of Anatomy

GCS Medical College

Hospital and Research Centre, Ahmedabad

Ashok Nirvan MBBS, MS, DNB, PhD

Associate Professor

Department of Anatomy

BJ Medical College, Ahmedabad

Sanjay Kanani MBBS, MD

Assistant Professor

Department of Anatomy

GMERS Medical College, Gandhinagar



CBS Publishers & Distributors Pvt Ltd

New Delhi • Bengaluru • Chennai • Kochi • Kolkata • Lucknow • Mumbai Hyderabad • Jharkhand • Nagpur • Patna • Pune • Uttarakhand

Disclaimer

Science and technology are constantly changing fields. New research and experience broaden the scope of information and knowledge. The authors have tried their best in giving information available to them while preparing the material for this book. Although, all efforts have been made to ensure optimum accuracy of the material, yet it is quite possible some errors might have been left uncorrected. The publisher, the printer and the authors will not be held responsible for any inadvertent errors, or inaccuracies.



ISBN: 978-93-5466-292-8

Copyright © Authors and Publisher

First Edition: 2022

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system without permission, in written, from the authors and the publisher.

Published by Satish Kumar Jain and produced by Varun Jain for

CBS Publishers & Distributors Pvt Ltd

4819/XI Prahlad Street, 24 Ansari Road, Daryaganj, New Delhi 110 002, India

Ph: 011-23289259, 23266861, 23266867 Fax: 011-23243014 Website: www.cbspd.com

e-mail: delhi@cbspd.com; cbspubs@airfelmail.in

Corporate Office: 204 FIE, Industrial Area, Patparganj, Delhi 110 092, India

Ph: 011-4934 4934 Fax: 011-4934 4935 e-mail: publishing@cbspd.com; publicity@cbspd.com

Branches

 Bengaluru: Seema House 2975, 17th Cross, KR Road, Banasankari 2nd Stage, Bengaluru 560 070, Karnataka, India

Ph: +91-80-26771678/79 Fax: +91-80-26771680 e-mail: bangalore@cbspd.com

• Chennai: 7, Subbaraya Street, Shenoy Nagar, Chennai 600 030, Tamil Nadu, India Ph: +91-44-26680620, 26681266 Fax: +91-44-42032115 e-mail: chennai@cbspd.com

• Kochi: 42/1325, 1326, Power House Road, Opp KSEB, Power House, Ernakulum Kochi 682 018, Kerala, India Ph: +91-484-4059061-65,67 Fax: +91-484-4059065 e-mail: kochi@cbspd.com

• Kolkata: 147, Hind Ceramics Compound, 1st Floor, Nilgunj Road, Belghoria, Kolkata 700 056, West Bengal, India

Ph: +91-33-25633055/56 e-mail: kolkata@cbspd.com

 Lucknow: Basement, Khushnuma Complex, 7 Meerabai Marg (behind Jawahar Bhawan), Lucknow 226 001, UP, India

Ph: +910522-4000032 e-mail: tiwari.lucknow@cbspd.com

Mumbai: PWD Shed, Gala no 25/26, Ramchandra Bhatt Marg, Next to JJ Hospital Gate no. 2,
 Opp. Union Bank of India, Noorbaug, Mumbai 400 009, Maharashtra, India
 Ph: +91-22-66661880/89
 e-mail: mumbai@cbspd.com

Representatives

Hyderabad 0-9885175004
 Patna 0-9334159340
 Jharkhand 0-9811541605
 Pune 0-9623451994
 Nagpur 0-9421945513
 Uttarakhand 0-9716462459

Printed in India Goyal Offset Works Pvt. Ltd., Haryana (INDIA)

to Our Great Teachers Students—past, present and future Our family members

Preface

Latest MCI/NMC guidelines on Competencies Based Medical Education greatly emphasize taking clinical approach to anatomy. Understanding of clinical anatomy in the form of case based questions (CBQs) forms a vital part in this new curriculum. Answering a tricky case based questions (CBQs) in examination can be a tough task for the first year undergraduate student. In this context we felt a great need of a book for medical undergraduates which not only simplifies the clinical understanding of anatomy but also makes the learning more fruitful. Special precaution has been taken to keep the discussion simple, keeping in mind that first year medical students have no exposure to real patients.

Case presentations are planned in such a manner that they closely resemble actual clinical scenarios which would help students have clear understanding of the anatomical aspect of clinical conditions. This book is first of its kind in anatomy and we feel that the book will be very easy to follow by the students and they will find this book very useful in answering case based questions (CBQs) during their examination. We earnestly hope that students and academics would find this book useful and interesting.

Feedback and comments are most welcomed and will be duly acknowledged in the next edition.

Ritesh Shah Ashok Nirvan Sanjay Kanani

Acknowledgements

Preparation for this book started with collection of case based questions from many quarters including those asked in examinations since new curriculum introduced by National Medical Commission (NMC). The competency based medical education (CBME) by NMC for Indian medical graduates emphasize more on clinical and practical knowledge.

We had received lots of suggestion and guidance from many of our senior teachers and colleagues to whom we don't have enough words to express our gratitude. In this regard we would like to thank Dr Sucheta Chaudhary (Professor, BJ Medical College, Ahmedabad), Dr Bharat Patel (Professor, GCS Medical College, Ahmedabad), Dr Dipali Trivedi (Professor, BJ Medical College, Ahmedabad), Dr VH Vania (Professor, Govt Medical College, Baroda), Dr SP Rathod (Dean and Professor, GMERS Medical College, Junagadh), Dr Minaxi Bansal (Professor, Govt Medical College, Surat), Dr Shailesh Patel (Professor, Govt Medical College, Bhavnagar), Dr Mittal Patel (Professor, MP Shah Medical College, Jamnagar), Dr TC Singel (Professor, MK Shah Medical College, Ahmedabad), Dr Hrishikesh Jadav (Professor, MK Shah Medical College, Ahmedabad), Dr Sunil Oza (Professor, GMERS Medical College, Vadnagar), Dr Padma Varlekar (Professor, GMERS Medical College, Patan), Dr Rajesh Astik (Professor, GMERS Medical College, Himmatnagar), Dr Ojaswini Malukar (Professor, GMERS Medical College, Gotri), Dr Ankur Zalawadia (Professor, GMERS Medical College, Gandhinagar), Dr Pankaj Maheria (Professor, GMERS Medical College, Valsad), Dr Bhavik Doshi (Associate Professor, GMERS Medical College, Sola, Ahmedabad) Dr Ashish Pandya (Associate Professor, PDU Medical College, Rajkot), Dr Sanjay Chavda (Professor, GMERS Medical College, Junagadh), Dr Prabhakaran (Professor, Nootan Medical College, Visnagar), Dr Mayank Javia (Professor, Shantabaa Medical College, Amreli), Dr KP Danger (Assistant Professor, PDU Medical College, Rajkot), Dr Kintu Vyas (Assistant Professor, SSG Medical College, Baroda), Dr DS Patil (Associate Professor, Govt Medical College, Surat). We are very much indebted to our teachers of Anatomy Dr GV Shah (Dean, SBKS Medical College, Vaghodia), Dr BD Trivedi (Retired Professor, MK Shah Medical College Ahmedabad), Dr SV Patel (Professor, MK Shah Medical College, Ahmedabad), and Dr SK Nagar (Professor, MP Shah Medical College, Jamnagar).

We are sincerely thankful to Dr SL Jethani (Professor and Head, Department of Anatomy, Himalayan Institute of Medical Sciences) and Dr Dhiraj Saxena (Professor and Head, Dept of Anatomy, SMS Medical College, Jaipur) for his valuable and critical suggestions.

We sincerely thank our seniors and colleagues in Anatomy Department Dr. Sunita Gupta, Dr DS Patel, Dr KP Shah, Dr Paras Shrimankar, Dr Rashmikant Dave, Dr Viren Kariya, Dr Dimple Ganatra, Dr DT Parmar, Dr MK Shah, Dr ST Shah, Dr SG Desai, Dr Swati Shah, Dr DM Kapadia, Dr Kiran Arora, Dr Jalpa Desai, Dr Chirag Vadhel for their support and constructive comments. We sincerely thank Dr Vidhyasagar Sharma, Dr Hetal Jeeyani and Dr Mohit Ruparel for their support for their contructive comments during preparation of this book.

We are grateful to Mr YN Arjuna and his team, and Javed Hashmi at CBSPD for constant support and guidance in publishing this book.

Ritesh Shah Ashok Nirvan Sanjay Kanani

Contents

Preface vii

SECTION 1: UPPER LIMB

- Bones 2
- Pectoral Region and Axilla 9
- Back and Scapular Region and Veins of Upper Limb 22
- Anterior Arm and Cubital Fossa 27
- Posterior Arm 31
- Forearm 32
- Hand 42
- Joints 50

SECTION 2: LOWER LIMB

- Bones 58
- Thigh and Gluteal Region 64
- Popliteal Fossa 78
- Leg 81
- Foot 87
- Joints 90
- Veins of Lower Limb 98
- Arches of Foot 101

SECTION 3: THORAX

- Bones 106
- Walls of Thorax 110
- Pleura and Lung 111
- Mediastinum 116
- Pericardium 119
- Heart 120
- Other Structures of Thorax 126

SECTION 4: ABDOMEN

- Bones 136
- Anterior Abdominal Wall 137
- Male External Genitalia 144
- Abdominal Cavity and Peritoneum 149
- Abdominal Part of Stomach and Oesophagus 153

- Small and Large Intestine 157
- Large Blood Vessels of Abdomen 164
- Extrahepatic Biliary Apparatus 165
- Spleen, Pancreas and Liver 168
- Kidney and Ureter 172
- Diaphragm 174
- Posterior Abdominal Wall 176
- Perineum 177
- Urinary Bladder and Urethra 179
- Female Reproductive Organs 180
- Male Reproductive Organs 186
- Rectum and Anal Canal 188

SECTION 5: HEAD AND NECK

- Bones 192
- Scalp and Face 196
- Side of Neck 201
- Anterior Triangle 205
- Parotid Region 207
- Temporal-Infratemporal Region 209
- Submandibular Region 212
- Deep Structures in Neck 213
- Pre- and Paravertebral Regions 217
- Vertebral Canal 218
- Orbit 219
- Cranial Cavity 221
- Mouth and Pharynx 226
- Nose 230
- Tongue 232
- Larynx 233
- Ear 234

SECTION 6: NEUROANATOMY

- Spinal Cord 240
- Brainstem 241
- Cerebellum 246
- Thalamus 248
- Internal Capsule 249
- Basal Ganglia 250
- CSF 252

χij

• Special Senses 253

Index 255