Contents

Part I  History

1 Osteonecrosis: Historical Perspective ......................................................... 3
   Marvin E. Steinberg and David R. Steinberg

Part II  Anatomy and Blood Flow

2 Vascular Anatomy and Blood Supply to the Femoral Head ...................... 19
   Marcin Zlotorowicz and Jaroslaw Czubak

3 Ischemia and Reperfusion Injury in Bone.................................................. 27
   Howard Winet

Part III  Epidemiology

4 The Prevalence of Osteonecrosis in Different Parts of the World ............. 35
   A.C. Gosling-Gardeniers, W.H.C. Rijnen, and J.W.M. Gardeniers

5 Epidemiology of Osteonecrosis in the USA .............................................. 39
   Sameer M. Naranje and Edward Y. Cheng

6 The Epidemiology of Osteonecrosis in Japan.......................................... 47
   Takuaki Yamamoto, Ryosuke Yamaguchi, and Yukihide Iwamoto

7 Epidemiology of Osteonecrosis of the Femoral Head in South Korea ....... 51
   Joon Soon Kang and Kee Hyung Rhyu

8 Current Trends of Osteonecrosis of the Femoral Head
   in Taiwan and China.................................................................................. 55
   Fang-Tsai Lee, Tso-Chiang Ma, and Mel S. Lee

Part IV  Etiology

9 Genetic Studies in Osteonecrosis of the Femoral Head ............................ 61
   Shin-Yoon Kim and Tae-Ho Kim

10 Osteonecrosis and Intravascular Coagulation Revisited .......................... 71
    Lynne C. Jones and Deborah McK. Ciombor

11 Glucocorticoids (as an Etiologic Factor).................................................. 81
    Eun Young Lee and Yun Jong Lee

12 Corticosteroid Usage and Osteonecrosis of the Hip................................ 91
    Jeffrey J. Cherian, Bhaveen H. Kapadia, Samik Banerjee,
    Julio J. Jauregui, and Michael A. Mont

Bibliografische Informationen
http://d-nb.info/1028417225
Part V Pathology

18 Pathophysiology of Ischemic Diseases of the Hip: Osteonecrosis, Borderline Necrosis, and Bone Marrow Edema Syndrome
Kyung-Hoi Koo, Young-Kyun Lee, and Yun Jong Lee

19 The Pathology of Osteonecrosis of the Femoral Head
Takuaki Yamamoto

Part VI Clinical Manifestation

20 Natural History of Osteonecrosis
Samik Banerjee, Bhaveen H. Kapadia, Julio J. Jauregui, Jeffrey J. Cherian, and Michael A. Mont

21 Causes of Pain in Early and Advanced Stage Osteonecrosis
Vivek S. Jagadale and Edward Y. Cheng

22 Accumulation of Necrotic Fatty Marrow in Osteonecrotic Hips Mimicking Septic Arthritis
Tae-Young Kim, Kyung-Hoi Koo, and Javad Parvizi

Part VII Imaging Diagnosis

23 Radiography, MRI, CT, Bone Scan, and PET-CT
Kyung Nam Ryu, Wook Jin, and Ji Seon Park

Part VIII Staging and Classification

24 Ficat Staging System
Kyung-Hoi Koo

25 The University of Pennsylvania Classification of Osteonecrosis
David R. Steinberg and Marvin E. Steinberg
26 Natural Course and the JIC Classification of Osteonecrosis of the Femoral Head ................................................................. 207
Nobuhiko Sugano and Kenji Ohzono

27 Modified Kerboul Classification System of Necrotic Extent Using MRI................................................................. 211
Yong-Chan Ha, Young-Kyun Lee, and Kyung-Hoi Koo

28 The ARCO Staging System: Generation and Evolution Since 1991 215
J.W.M. Gardeniers, A.C. Gosling-Gardeniers, and W.H.C. Rijnen

Part IX Differential Diagnosis

29 Subchondral Stress Fracture of the Femoral Head ................................................................. 221
Hee Joong Kim, Jeong Joon Yoo, and Pil Whan Yoon

30 Bone Marrow Edema Syndrome of the Hip ................................................................. 231
Young-Kyun Lee and Kyung-Hoi Koo

31 Distinguishing Bone Marrow Edema Syndrome from Osteonecrosis ................................................................. 235
Marc W. Hungerford and Kyung-Hoi Koo

Part X Non-surgical Treatments

32 Treatment of Osteonecrosis of the Hip and Knee with Enoxaparin................................................................. 241
Charles J. Glueck, Richard A. Freiberg, and Ping Wang

33 The Role of Coagulopathy in the Pathogenesis and Prevention of Corticosteroid-Induced Osteonecrosis ................................................................. 249
Takuaki Yamamoto, Goro Motomura, Ryosuke Yamaguchi, and Yukihide Iwamoto

34 Lipid-Lowering Agents and Their Effects on Osteonecrosis: Pros and Cons................................................................. 255
Abdurrahman Kandil and Quanjun Cui

35 Is There a Role for BMPs in the Treatment of Osteonecrosis? ................................................................. 261
Philipp Leucht and Stuart B. Goodman

36 Alendronate in the Prevention of Collapse of the Femoral Head in Nontraumatic Osteonecrosis ................................................................. 265
Chung-Hwan Chen and Gwo-Jaw Wang

37 New Therapies of Bone Necrosis................................................................. 273
Wolf Drescher, Matthias Knobe, Wolfgang Wagner, and Thomas Pufe

Part XI Surgical Treatments

38 Principles of Core Decompression for Osteonecrosis of the Hip ................................................................. 279
Bhaveen H. Kapadia, Samik Banerjee, Jeffrey J. Cherian, Julio J. Jaregui and Michael A. Mont

39 Stem Cells in Osteonecrosis: Cons................................................................. 285
Anjan P. Kaushik, Anusuya Das, and Quanjun Cui
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Cement Techniques in Hip Osteonecrosis with Collapse: From Traditional Methyl Methacrylate to Bone Substitutes and Stem Cells</td>
<td>Philippe Hernigou and Gildasio Daltro</td>
</tr>
<tr>
<td>41</td>
<td>Impaction Bone Grafting</td>
<td>Seung-Hoon Baek and Shin-Yoon Kim</td>
</tr>
<tr>
<td>42</td>
<td>Principles of Bone Grafting for Osteonecrosis of the Hip</td>
<td>Julio J. Jauregui, Samik Banerjee, Bhaveen H. Kapadia, Jeffrey J. Cherian, Kimona Issa, and Michael A. Mont</td>
</tr>
<tr>
<td>43</td>
<td>Vascularized Pedicle Iliac Bone Grafting for Osteonecrosis of the Femoral Head</td>
<td>Mel S. Lee</td>
</tr>
<tr>
<td>44</td>
<td>The Vascularized Fibular Graft in the Treatment of Osteonecrosis: Data, Dogma, and Controversies</td>
<td>Will Eward</td>
</tr>
<tr>
<td>45</td>
<td>Transtrochanteric Rotational Osteotomy for Femoral Head Osteonecrosis</td>
<td>Yong-Chan Ha, Jae-Hwi Nho, and Kyung-Hoi Koo</td>
</tr>
<tr>
<td>46</td>
<td>Posterior Rotational Osteotomy for Severe Femoral Head Osteonecrosis</td>
<td>Takashi Atsumi</td>
</tr>
<tr>
<td>47</td>
<td>Transtrochanteric Curved Varus Osteotomy for the Treatment of Osteonecrosis of the Femoral Head</td>
<td>Takuaki Yamamoto, Satoshi Ikemura, and Yukihide Iwamoto</td>
</tr>
<tr>
<td>48</td>
<td>Total Hip Arthroplasty Using Ceramic-on-Ceramic Articulation</td>
<td>Young-Kyun Lee, Ki-Choul Kim, Bun Jung Kang, and Kyung-Hoi Koo</td>
</tr>
<tr>
<td>49</td>
<td>Highly Crosslinked Polyethylene Liners in Patients with Osteonecrosis of the Femoral Head</td>
<td>Patrick O'Toole and Javad Parvizi</td>
</tr>
<tr>
<td>50</td>
<td>Alumina Ceramic-on-Highly Cross-Linked Polyethylene Bearing in Cementless Total Hip Arthroplasty in Young Patients with Osteonecrosis of Femoral Head</td>
<td>Young-Hoo Kim</td>
</tr>
<tr>
<td>51</td>
<td>Hip Arthroplasty for Osteonecrosis of the Femoral Head</td>
<td>Harlan C. Amstutz, Michel J. Le Duff, and Mariam Al-Hamad</td>
</tr>
<tr>
<td>52</td>
<td>Resurfacing Arthroplasty for Osteonecrosis of the Femoral Head</td>
<td>Bernard N. Stulberg and Jayson D. Zadzilka</td>
</tr>
<tr>
<td>53</td>
<td>Multifocal Osteonecrosis</td>
<td>Samik Banerjee, Bhaveen H. Kapadia, Jeffrey J. Cherian, Julio J. Jauregui, and Michael A. Mont</td>
</tr>
<tr>
<td>54</td>
<td>Osteonecrosis of the Humeral Head</td>
<td>Nobuhiko Sugano</td>
</tr>
<tr>
<td>55</td>
<td>Knee Osteonecrosis</td>
<td>Karthik E. Ponnusamy, Savyasachi Thakkar, and Harpal S. Khanuja</td>
</tr>
</tbody>
</table>