Contents

Introduction xi
Rui P. Fernandes

Preface xiii
Michael D. Turner and Maria J. Troulis

Surgical Armamentarium for Sialendoscopy 85
Michael D. Turner

Introduction 85
Sialendoscope segments 85
Basic structures of a fiberoptic endoscope 85
White balance 85
Sialendoscopes 85

Surgical Techniques for the Management of Parotid Salivary Duct Strictures 93
Erica M. Jackson and Rohan R. Walvekar

Anatomy 93
Stenosis type and classification 93
Patient selection 94
Diagnostic studies 94
Treatment 95
Medical and conservative therapy 95
Contraindications 95
Intervention based on clinical findings 95
Scenario I: papilla not visible 95
Scenario II: ductal stenosis in the distal parotid duct; papilla visible 95
Scenario III: ductal stenosis in the mid-parotid duct 97
Scenario IV: hilar and intraductal stenosis 97
Complications 97

Surgical Techniques for the Management of Submandibular Salivary Duct Strictures 99
Justine Moe and Joseph I. Helman

Local anatomy: floor of the mouth and Wharton duct 99
Pathogenesis 99
Signs and symptoms 99
Diagnosis 100
Treatment 100
Sialendoscopy 100
Step 1: duct identification and dilatation 101
Step 2: stricture management 101
Step 3: catheter/stent placement 102
Outcomes 102
Summary 103
## Contents

**Surgical Retrieval of Parotid Stones**
Fernando Pozzi Semeghini Guastaldi, Jose Sandro Pereira da Silva, Maria J. Troulis, and Edward Lahey

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement of the problem</td>
<td>105</td>
</tr>
<tr>
<td>Diagnostic methods</td>
<td>105</td>
</tr>
<tr>
<td>Surgical technique</td>
<td>105</td>
</tr>
<tr>
<td>Step 1: patient positioning</td>
<td>106</td>
</tr>
<tr>
<td>Step 2: identification and dilatation of Stensen duct</td>
<td>106</td>
</tr>
<tr>
<td>Step 3: duct navigation</td>
<td>107</td>
</tr>
<tr>
<td>Step 4: stone identification</td>
<td>107</td>
</tr>
<tr>
<td>Step 5: stone removal</td>
<td>109</td>
</tr>
<tr>
<td>Step 6: duct catheterization</td>
<td>109</td>
</tr>
<tr>
<td>Step 7: postoperative care</td>
<td>109</td>
</tr>
<tr>
<td>Complications</td>
<td>109</td>
</tr>
<tr>
<td>Pearls and pitfalls</td>
<td>109</td>
</tr>
<tr>
<td>Summary</td>
<td>110</td>
</tr>
</tbody>
</table>

**Surgical Retrieval of Submandibular Stones**
Joseph P. McCain and Jose Montero

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction: nature of the problem</td>
<td>111</td>
</tr>
<tr>
<td>Surgical technique</td>
<td>111</td>
</tr>
<tr>
<td>Preoperative planning</td>
<td>111</td>
</tr>
<tr>
<td>Surgical approach</td>
<td>111</td>
</tr>
<tr>
<td>Diagnostic sialendoscopy</td>
<td>111</td>
</tr>
<tr>
<td>Sialendoscopy sialolithectomy</td>
<td>111</td>
</tr>
<tr>
<td>Diagnostic sialendoscopy</td>
<td>112</td>
</tr>
<tr>
<td>Operative sialendoscopy</td>
<td>113</td>
</tr>
<tr>
<td>Potential complications</td>
<td>115</td>
</tr>
<tr>
<td>Pearls and pitfalls</td>
<td>115</td>
</tr>
<tr>
<td>Rehabilitation and recovery</td>
<td>117</td>
</tr>
<tr>
<td>Summary</td>
<td>117</td>
</tr>
</tbody>
</table>

**Ultrasound-Guided Salivary Gland Techniques and Interpretations**
Henry T. Hoffman and Nitin A. Pagedar

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>119</td>
</tr>
<tr>
<td>Technique</td>
<td>119</td>
</tr>
<tr>
<td>Preparation: indications</td>
<td>119</td>
</tr>
<tr>
<td>Preparation: informed consent</td>
<td>120</td>
</tr>
<tr>
<td>Standard diagnostic approach</td>
<td>120</td>
</tr>
<tr>
<td>Generating a report</td>
<td>120</td>
</tr>
<tr>
<td>Diagnostic ultrasound imaging</td>
<td>122</td>
</tr>
<tr>
<td>Nonsalivary facial swelling</td>
<td>122</td>
</tr>
<tr>
<td>Sialolithias</td>
<td>122</td>
</tr>
<tr>
<td>Salivary duct stricture without stone</td>
<td>124</td>
</tr>
<tr>
<td>Chronic sialadenitis</td>
<td>125</td>
</tr>
<tr>
<td>Sjögren’s syndrome</td>
<td>126</td>
</tr>
<tr>
<td>Ultrasound-directed salivary procedures</td>
<td>127</td>
</tr>
<tr>
<td>Ultrasound-guided percutaneous to antegrade sialendoscopy</td>
<td>127</td>
</tr>
<tr>
<td>Ultrasound-guided ductal stricture dilation</td>
<td>127</td>
</tr>
<tr>
<td>Ultrasound-guided Botox injection to salivary glands fine needle aspiration</td>
<td>128</td>
</tr>
</tbody>
</table>
Combined Parotid Techniques

M. Boyd Gillespie

Future directions
Shear-wave elastography
Contrast agents
Summary

Introduction 133
Patient evaluation 133
Part 1: getting started 134
   Equipment 134
   Operating room setup 134
   Ostial dilation 134
   Scope insertion 135
Part 2: obstructions distal to anterior border of masseter muscle (<2 cm from ostium) 136
   Distal stones with normal ostium: method of Foletti 136
   Distal (ostial) stricture with or without mega-duct: method of Marchal 137
Part 3: obstructions proximal to anterior border of masseter muscle (>2 cm from ostium) 138
   External preauricular approach 138
   External transfacial approach 140
Complications of combined parotid techniques 140
   Failure to improve (10%–15%) 141
   Ductal stenosis (10%–15%) 141
   Periauricular anesthesia (5%–10%) 141
   Hypertrophic scar (3%–5%) 141
   Salivary fistula/sialocele (1%–2%) 141
   Facial nerve weakness (<0.5%) 142

Combined Surgical Approaches for the Removal of Submandibular Gland Sialoliths

Michael D. Turner

Techniques 145
   Access to the duct orifice 145
   Papillotomy technique 145
   Anterior duct approach 146
   Posterior duct approach 148
   Slit duct approach 149
   Hilum approach 150

Robot-Assisted Glandular Surgery

Mark F. Marzouk

Introduction 153
Robot-assisted sialolithotomy and sialendoscopy 154
   Surgical technique 154
   Complications 154
   Postoperative care 155
Robot-assisted submandibular gland excision 155
   Retroauricular 155
   Transoral 155
   Transcervical 155
Contents

Extracorporeal Lithotripsy 159
Oded Nahlieli

Introduction: nature of the problem 159
Surgical technique 159
  The tool #1: extracorporeal shock wave lithotripters 159
  The tool #2: sialoendoscope 160
Extracorporeal shock wave lithotripsy: techniques 160
  Preoperative planning 160
  Traditional extracorporeal shock wave lithotripsy approach 161
  The Nahlieli low-energy shock waves technique 163
  Potential complications 164
  "Pearls and pitfalls" 164
  Clinical results in the literature 165
Summary 166

Intracorporeal Lithotripsy 169
Jack Kolenda

Introduction: nature of the problem 169
Surgical technique 169
  Preoperative planning 169
  Preparation and patient positioning 169
  Surgical approach 171
  Potential complications 172
  Pearls and pitfalls 172
  Immediate postoperative care 172
  Rehabilitation and recovery 173
Discussion 173
  Pneumatic lithotripsy 173
  Laser lithotripsy 173
Summary 174