

and small muscles of the thumb and little finger, can be felt to contract voluntarily, yet the movements are exceedingly limited indeed, their forcible efforts being almost fruitless. The sensitiveness of the skin of the whole arm seems somewhat blunted. The electrical reactions of the muscles were tested with the following results: The flexors were found normal, the extensors and small muscles of the hand gave the reaction of degeneration, not responding to a faradic current, but contracting to galvanism. It was not found possible to use a sufficiently strong current for the purpose of eliciting contractions, without causing severe pain, so that the typical reaction of degeneration in the muscles tested is still doubtful.

*Diagnosis:* Volkmann's contracture or ischæmic paralysis with coexisting pressure neuritis.

This serious deformity, first described by Volkmann<sup>1</sup> in 1875, receives only a brief notice, if any, in our modern text-books on medicine and surgery. Yet it is not a rare affection, for there are many reported cases in the literature. Up to 1896, twenty-five cases were reported by the German surgeons. In 1896 Heule<sup>2</sup> described a case in the service of Mikulicz where the bones of the forearm were resected, with good results. Battle<sup>3</sup> reported the first British case in the same year, to be soon followed by others: Dunn<sup>4</sup>, 1897; Johnson<sup>5</sup>, 1898; Davies-Colley<sup>6</sup>, 1898; Owen<sup>7</sup>, 1898; Clarke<sup>8</sup>, 1899; Page<sup>9</sup>, 1900; Littlewood<sup>10</sup>, 1900; Wallis<sup>11</sup>, 1901; Barnard<sup>12</sup>, 1901. Dudgeon<sup>13</sup> in 1902 collected and tabulated the reported English cases and wrote a valuable paper, giving an excellent account of the disease. He also added three other cases in 1903<sup>14</sup>. Edington<sup>15</sup> reported three Scotch cases in 1903 and Rowlands<sup>16</sup>, 1905, wrote a monograph based on Dudgeon's study, and added a case of his own. Three American surgeons, Bernays<sup>17</sup>, 1900, Ferguson<sup>18</sup>, 1906, and Powers<sup>19</sup>, 1907, have also contributed to the literature of the subject and report several cases. This makes, in all, nearly sixty cases.

*Etiology:* Volkmann's contracture is a contraction of the fingers and sometimes of the wrist, which comes on rapidly, with loss of power which is not absolute, in the forearm muscles, after a severe injury, usually a fracture in the neighborhood of the elbow joint, generally in young children. The deformity is due to changes in the muscles, caused, in most cases, by tight bandages and the pressure of splints. The dressings may not be too tightly applied at first, but no allowance is made for swelling. Pain is not always complained of, and cannot be relied upon as indicating undue pressure.

In nearly 50 per cent. of the reported cases there was a fracture of the humerus or a separation of its lower epiphysis, which may have caused pressure on the brachial artery between the splint and the end of the upper fragment of bone, leading to ischæmia of the parts below. Many cases