

# Hemiplegia — an unusual complication of appendectomy

## A case report

M. V. McCORMICK, J. J. HEYDENRYCH, J. L. LE ROUX

### Summary

A 12-year-old boy developed complete right hemiplegia and 7th cranial nerve palsy 2 days after laparotomy for a perforated appendix. Full recovery took 2 months. Although it can be accepted that the hemiparesis was not caused by acute appendicitis it is postulated that this unusual association was due either to a septic embolus which lodged in the region of the internal capsule or to a minor cerebrovascular accident.

*S Afr Med J* 1987; 71: 790-791.

### Case report

A 12-year-old boy was admitted to Tygerberg Hospital complaining of abdominal pain and vomiting of 2 days' duration. He was anorexic and also complained of a sore throat. Examination revealed an ill child with a temperature of 38,4°C. The pulse rate was 124/min, haemoglobin 15 g/dl and the abdomen had maximal and rebound tenderness in the right iliac fossa. A pre-operative diagnosis of appendicitis with perforation was made. The white blood cell count was 20,0 x 10<sup>9</sup>/l with 80% neutrophilia. The urine was normal. Cardiovascular, respiratory and neurological examinations revealed no abnormalities. Pre-operative resuscitation included administration of intravenous fluids and antibiotics (ampicillin and metronidazole). There was no electrolyte imbalance.

At operation the appendix was removed through a right paramedian incision; it had perforated and there was moderate soiling in the paracolic gutter and pelvis. Intra-operative peritoneal lavage with saline was carried out. The wound was drained with a Silastic corrugated drain.

The patient's general condition was much improved on the first postoperative day. However, on the second postoperative day there was acute onset of a right hemiparesis. Neurological examination revealed total right-sided hemiplegia with associated right 7th nerve palsy. Computed tomography of the brain showed non-specific changes which included flattening of the anterior horn of the left ventricle. Blood cultures on three successive occasions were all negative, the erythrocyte sedimentation rate was 25 mm/1st h (Westergren) and the white cell count 11,0 x 10<sup>9</sup>/l.

It was presumed that there was a small septic embolus in the region of the internal capsule and gentamicin 60 mg 8-hourly was added to his antibiotic regimen. Over the next few days he gradually regained strength in the arm and leg and was discharged with minimal residual weakness 3 weeks postoperatively. Follow-up at 1 month showed no evidence of any paresis.

### Discussion

In his presidential address to the Southern Surgical Association of North America, Williams gave a good review of the history of appendicitis.<sup>1</sup> He includes a few anecdotes, including the famous case of Sir Frederick Treves who operated on King Edward VII's perforated appendix in 1902. It is interesting to note that this noted surgeon was not an advocate of early operation for appendicitis.<sup>2</sup> It is, however, an accepted principle that it is the delay in either the presentation of the patient or the performance of an appendectomy that gives rise to complications.<sup>3</sup>

The commoner complications of appendicitis are documented in all textbooks of surgery. Briefly these include perforation, peritonitis, abscess formation and wound infection. Before the antibiotic era portal pyaemia and hepatic abscess formation were common complications of appendicitis and had an incidence of 10-30%.<sup>4,5</sup>

Rarer complications such as appendiceal stump abscess, haemorrhage after slippage of appendiceal vessel ligatures,<sup>6</sup> rectal haemorrhage,<sup>7</sup> intussusception of the appendiceal stump,<sup>8,9</sup> incisional and right inguinal hernias,<sup>10</sup> presentation in the neonate,<sup>11</sup> femoral nerve injury,<sup>12</sup> appendicitis in pregnancy,<sup>13</sup> fertility problems,<sup>14,15</sup> appendicitis in situs inversus<sup>16</sup> and, not difficult to believe, appendicitis following appendectomy<sup>17</sup> have also been described.

A detailed search of the literature revealed no report of a total hemiplegia developing after an appendectomy as in our case.

Metastatic abscess formation from septic emboli is also one of the more unusual complications of appendicitis complicated by perforation and peritonitis. Theoretically this could occur in the brain. However, one would expect any micro-embolus to drain to the liver in the first instance. To bypass the liver one would have to assume that the embolus drained via the lumbar vein or inferior vena cava and, in addition, assume the presence of a small septal defect. An echocardiogram was unfortunately not done on our patient to exclude or confirm this possibility.

An air embolus from the intravenous infusions is another remote possibility. There was no evidence to suggest that this was the cause of the hemiplegia nor were there any other complications of intravenous therapy.

A final possibility is that the hemiplegia was not related to the appendectomy *per se* and may have been due to a minor cerebrovascular accident, which is extremely rare in children operated on for acute appendicitis.

### REFERENCES

1. Williams GR. A history of appendicitis: with anecdotes illustrating its importance. *Ann Surg* 1983; 197: 495-506.
2. Treves F. Inflammation of the vermiform appendix. *Lancet* 1902; i: 1815-1818.
3. Ravitsch MM. Appendicitis. *Pediatrics* 1982; 70: 414-419.
4. Ochsner AM. Pyogenic abscess of the liver. *Am J Surg* 1938; 40: 292-319.
5. Leigh PGA, Saron IJ. Pyogenic liver abscess following appendicitis. *S Afr J Surg* 1971; 9: 147-153.

Department of Paediatric Surgery, University of Stellenbosch and Tygerberg Hospital, Parowvallei, CP

M. V. McCORMICK, F.R.C.S.

J. J. HEYDENRYCH, M.SC., M.B. CH.B., M.MED. (SURG. & PAED. SURG.)

J. L. LE ROUX, B.SC. HONS, M.B. CH.B.



6. Vo N, Hall FM. Severe post-appendectomy bleeding. *Am Surg* 1983; **49**: 560-562.
7. Sandsmark M. Serious delayed rectal haemorrhage following uncomplicated appendectomy. *Acta Chir Scand* 1977; **143**: 385-386.
8. Wolfson S, Shachor D, Freund U. Ileocolic intussusception in an adult: a post-operative complication of appendicitis. *Dis Colon Rectum* 1984; **27**: 265-266.
9. La Salle AJ, Andrassy RJ, Page CP, Henry DA, Backley CJ. Intussusception of the appendiceal stump. *Clin Pediatr* 1980; **19**: 432-435.
10. Arnbjörnsson E. Development of right inguinal hernia after appendectomy. *Am J Surg* 1982; **143**: 174-175.
11. Heydenrych JJ, Du Toit DF. Unusual presentations of acute appendicitis in the neonate: a report of 2 cases. *S Afr Med J* 1982; **62**: 1003-1005.
12. Kourtópoulos H. Femoral nerve injury following appendectomy. *J Neurosurg* 1982; **57**: 714-715.
13. Babaknia A, Parsa H, Woodruff JD. Appendicitis during pregnancy. *Obstet Gynecol* 1977; **50**: 40-44.
14. Geerdens J, Bech Hansen J. Incidence of sterility in women operated on in childhood for perforated appendicitis. *Acta Obstet Gynecol Scand* 1977; **56**: 523-524.
15. Pauley PH. Infertility due to pelvic abscess and pelvic peritonitis in appendicitis. *Lancet* 1965; **i**: 27.
16. Holgersen LO, Rossiter-Kuehner C, Stanley-Brown EG. Acute appendicitis in a child with complete situs inversus. *J Pediatr Surg* 1970; **5**: 379-380.
17. Francis DMA. Appendicitis following appendectomy. *J R Coll Surg Edinb* 1984; **29**: 61-62.

# Posterior dislocation of the sternoclavicular joint associated with major spinal injury

## A case report

J. A. LOUW, J. A. LOUW

### Summary

A case of posterior dislocation of the sternoclavicular joint associated with a T3/4 fracture-dislocation and paraplegia is reported. This unusual injury is readily overlooked. In spite of the high demands on the upper limbs made by the paraplegic patient, conservative management yielded an excellent result in this case.

*S Afr Med J* 1987; **71**: 791-792.

Fractures and dislocations of the thoracic spine should always arouse suspicion of associated injuries of the thoracic cage and shoulder girdle. These include fractures of the sternum, rib fractures, and fractures and dislocations around the shoulder and clavicle. It is important to recognise these injuries early and treat them effectively, because the rehabilitation and future mobility of the paraplegic patient depend to a great extent on healthy and strong upper limbs.

### Case report

A 30-year-old black man sustained the following injuries in a road

Department of Orthopaedic Surgery, University of Pretoria and H. F. Verwoerd and Kalafong Hospitals, Pretoria

J. A. LOUW, M.B. CH.B., M.PRAX.MED.

J. A. LOUW, M.B. CH.B., M.MED. (ORTH.)

Reprint requests to: Dr J. A. Louw, Dept of Orthopaedic Surgery, H. F. Verwoerd Hospital, Private Bag X169, Pretoria, 0001 RSA.

accident: posterior dislocation of the left sternoclavicular joint (Fig. 1); fracture-dislocation of the spine at the T3/4 vertebral level, with total paraplegia; compound fracture of the left olecranon process; and compound fracture of the left ankle.

Septic wounds and abrasions of the scalp and the left shoulder made early surgical intervention on the left sternoclavicular joint and the spine unwise. There was no evidence of retrosternal pressure, and therefore no attempt was made to reduce the medial end of the clavicle. The elbow and ankle joints were effectively restored within 2 months. Rehabilitation of the patient's left shoulder started 3 weeks after his injury when all pain had subsided, and consisted of passive and active mobilisation of this joint. Total paraplegia persisted and stability of the spine was gained after 3 months in bed.

The patient's rehabilitation in a wheelchair was unhampered by the sternoclavicular dislocation. Within 6 weeks of being out of bed he was able to lower himself from his wheelchair onto the floor and back again without any assistance. He could also pivot

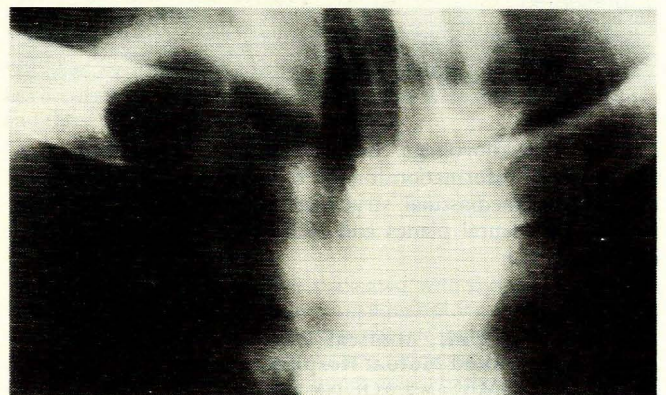


Fig. 1. Ten-degree anteroposterior zonogram of the sternum and medial portions of the clavicles. The medial end of the left clavicle is displaced inferiorly and medially.