with mechanical obstruction of the small intestine, of which almost three-quarters were due to adhesions and 8% to strangulated hernia.

Interestingly, in less developed communities strangulated hernia (particularly inguinal hernia) remains the most common cause of intestinal obstruction—65% in Benin City, Nigeria,⁵ 75% in Uganda,⁶ and as much as 78% in Ghana.⁷ In these series the incidence of adhesions is low and they are often due to intrapelvic sepsis rather than surgery. There are other remarkable examples of geographical variations. For example, volvulus is relatively unusual in Western Europe and North America, yet it is extremely common in Eastern Europe, parts of Eastern and Central Africa, and India. In India tuberculosis of the intestine is relatively common and sometimes presents as obstruction. A surprisingly high incidence of intussusception in both children and young adults has been reported from Ibadan.⁸

Large series of cases show that throughout the Western world⁹ the very high death rate associated with intestinal obstruction—around 26% of all cases—typical of the 1920s and 1930s has now been reduced to about 10-15%. This improvement has undoubtedly been due to a combination of improved anaesthesia, better knowledge of fluid and electrolyte replacement, efficient blood transfusion services, and the introduction of antibiotics. The major factors adversely influencing survival rate are strangulation of the bowel with gangrene (or worse still perforation), delay in treatment with severe distension and gross fluid and electrolyte disturbance, and extremes of age—mortality being especially high in children and the elderly. As recently as 1976, Barnett and his colleagues reported 56 deaths out of 151 cases of intestinal strangulation.¹⁰

Many thousands of pages have been written by dozens of experienced surgeons on the differential diagnosis of simple and strangulated obstruction. Various authorities have emphasised various factors in the history, the examination, and the results of laboratory investigations of these patients. A sudden onset of pain that is continuous rather than colicky, the early appearance of shock, fever, tachycardia, appreciable abdominal tenderness, rebound tenderness, guarding, a tender abdominal mass, and a raised white blood count are all said to point to strangulation. Yet close analysis of any series of cases will soon show that attempts at such differential diagnosis are little more than academic. Indeed, most experienced surgeons will point out the very real dangers of attempting such diagnostic accuracy, and advocate early laparotomy as a routine in cases of acute mechanical intestinal obstruction.⁹ Silen and his colleagues,¹¹ for example, found that only 17 of 112 cases of strangulated obstruction were correctly diagnosed at the initial admission to hospital. Shatila and colleagues¹² compared 50 patients with strangulated obstruction with 53 having simple occlusion. The two groups had a similar incidence of pain, vomiting, distension, raised pulse rate and temperature, and tenderness and rebound. A mass was more common in strangulation (including strangulated hernia); and rigidity, shock, a depressed temperature, and rectal bleeding occurred in a few cases of late strangulation. The white blood count (beloved as a differential sign by many authors) was raised above 11 000 in 24 of the 53 cases of simple strangulation and 31 of the 50 strangulated cases. Other reports have given similar comparative results.^{13 14}

No matter how well the patient may seem and how innocent the local and general signs may be, there are no clinical means or any accurate laboratory or radiological tests that will show whether a strangulated loop of intestine, with all its lethal

potential, is present within the abdominal cavity. This is perhaps the most vitally important fact the surgeon must bear in mind when he deals with a case of intestinal obstruction. Once a clinical diagnosis of obstruction is made, even when radiological appearances are normal and there is nothing to suggest strangulation, the best treatment is still urgent surgery. Procrastination merely puts the patient's life in further jeopardy.

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Surgical management of syringomyelia

Painless burns and dissociated anaesthesia in the areflexic wasted arms of a 40-year-old form a distinctive clinical picture of syringomyelia. The disorder is one of the most slowly progressive degenerative diseases of the nervous system; static periods are common, and many patients survive into late middle age after an onset in the 30s. The average age at diagnosis is 45; men and women are equally affected. Symptoms have usually been present for five to 10 years at diagnosis, but occasionally they may be traced back to early childhood. A history of protracted labour and birth injury is not uncommon.

The clinical signs are well known, but the stationary periods are less well recognised. Sudden exacerbations of acute syringomyelia may occur after a cough, a sneeze, or sudden straining. Periodic pain in the occipital region and neck may follow such straining and is attributed to stretching of the upper cervical roots by the frequent associated malformation at the foramen magnum with its related hydrodynamic changes.

In most patients a communication, most often a dilated central canal, exists between the fourth ventricle and the

syrinx.¹ Some degree of obstruction usually exists at the foramen magnum, frequently a Chiari-type malformation with prolapse of the cerebellar tonsils. Coughing or straining may then repeatedly cause a transient dissociation of pressures in the cranium and the spine.² Many operations have been devised to decompress this obstruction or to reverse the dynamic forces which distend the syrinx.³⁻⁶

The dilatation of the spinal cord due to the syrinx may be shown in plain radiographs, which may also show a widened cervical canal and atlantoaxial apposition, or they may otherwise be normal. Myelography using metrizamide and air will confirm the diffuse expansion of the cord, and the air technique may show the collapsing cord sign associated with collapse of a cervical cyst. Computerised tomography may help in showing instances of associated hydrocephalus, in delineating the Chiari malformation, or in indicating basilar invagination.

The results of surgery are not easy to assess⁶ since in untreated patients the condition runs a variable course often with little disability for many years, though in the end they develop severe crippling complications. Long periods of follow-up have been few in a relatively rare disease, and the substantial operative morbidity and mortality need to be weighed carefully against short-term improvements after the operation. Ventricular shunting will lower the pressure of the cerebrospinal fluid but it carries known hazards and has little logic in the patient whose ventricles are not dilated. In 33 patients followed up for four to 10 years by Love and Olafson⁷ simple incision of the syrinx (syringostomy) produced good (13) or excellent (10) results. Plugging of the communication in the floor of the fourth ventricle by muscle or thread is of uncertain value, especially since the plug may become dislodged.

The most commonly performed operation, recently assessed by Logue and Rice Edwards,⁶ consists of simple decompression at the foramen magnum, combined with syringostomy in certain cases with a deliberate effort to keep the arachnoid intact to avoid blood entering the subarachnoid space. They describe a consecutive series of 75 patients followed up for a mean period of five years. Twenty-one showed neurological improvement in motor function, joint position, and pain and temperature sensations, though no patient returned to normal. In 33 patients the progressive deterioration present before surgery stopped after operation, and their symptoms and signs remained static and stable throughout the follow-up. Patients with pain in the neck or headache after coughing and those with long tract signs in the legs fared best, and in general these were patients in whom a Chiari malformation was the main cause of symptoms. Surgery seemed best avoided in patients with severe disability requiring physical help at the time of assessment. In a comparable appraisal Williams³ emphasised the high mortality of operations on the posterior fossa (five out of 41). Morbidity is usually transient and is associated with age and respiratory symptoms, and particularly with pre-existing hydrocephalus, syringobulbia, and arachnoiditis. Unfortunately, the finding of craniospinal pressure dissociation does not give a certain indication of a successful surgical outcome, since the cerebellum may continue to "slump" and become impacted within the bone defect as it previously was in the foramen magnum.

Since no other method is available for altering the clinical course of this disease the modest claims of surgery require serious consideration. Attempts at early surgery to prevent progression are probably not justified in the patient whose symptoms are minimal and whose carefully observed clinical course appears to be stationary with no serious disability. Continued vigilance is, however, necessary in such patients:

when signs and incapacity increase investigations should be performed as a prelude to surgery. In a patient whose disability is already severe, surgery is unlikely to prove of much benefit but may nevertheless be undertaken as a calculated risk where deterioration is rapid or where headache and pain in the neck are intractable. The hydrodynamic theory of syringomyelia² represents a considerable advance, and further investigation of surgical methods may yet yield better prospects for the patient.

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Adult acute leukaemia: prospects for cure

The chance that an adult with acute leukaemia—usually acute myeloid leukaemia and less commonly acute lymphoblastic disease—will achieve complete remission after treatment with cytotoxic drugs has increased impressively in recent years.¹⁻³ Opinions are divided about the best way to achieve permanent cure. Some believe that further modification of chemotherapy schedules, particularly administration of cytotoxic drugs at relatively high doses immediately after remission (so-called early intensification or consolidation) is most likely to eradicate the disease. Others believe that chemoradiotherapy followed by marrow transplantation, where a suitable marrow donor exists, is the most promising approach.^{4 5}

Though clinical results of these contrasting approaches are now fairly evenly balanced, one or other method is likely to prove clearly superior within a few years. Ideally, a prospective, randomised study comparing the two approaches is necessary and one is now under way at the Sloan-Kettering Institute in New York.⁶ In fact, certain additional criteria are usually required before adults with acute leukaemia in remission are considered for transplantation: they must be relatively young because complications, especially graft-versus-host disease, seem more common and more severe in older patients; they must have an HLA-identical brother or sister as donor; and, perhaps equally important, they must be acquainted with the risks of the procedure and be enthusiastic or at least willing to proceed. The chemotherapy and radiotherapy preceding the marrow transplantation have two functions—to eradicate residual leukaemic cells still present in the marrow (and presumably elsewhere) even in remission and to induce