

first and last 50 cases in which the patients were given continuous spinal anesthesia were considered in order to compare results obtained earlier with those obtained after we had acquired some experience with this method. . . .

"On critical analysis, 44 per cent of the patients given general anesthesia and 77 per cent of those given continuous spinal anesthesia were considered to have had satisfactory operative and postoperative courses. The incidence of blood pressure falls was very appreciably less in those who received spinal anesthesia, with definite improvement in technique reflected in the course of the first and last fifty patients so treated. The occurrence of three fatal pulmonary emboli following the use of general ether anesthesia and none following the use of continuous spinal anesthesia, in our opinion, reflects the less complete relaxation produced by the former, necessitating greater operative trauma."

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BELLIS, C. J.: *Cystometry after Spinal Anesthesia*. *Surgery* 16: 896-905 (Dec.) 1944.

"Creevy's classical studies of the effects of prolonged vesical distention demonstrated that profound irreversible urinary tract damage may follow the neglect of the overdistended bladder. In the presence of urinary retention, there is an increased susceptibility of the urinary tract to infection; in fact, patients who were thought to have succumbed to obscure vasomotor effects following rapid decompression of the chronically distended bladder or to the infection attending catheterization really have died as a result of latent upper urinary tract infection harbored prior to the emptying procedure. Every cystoscopist is familiar with the mural hemorrhages in the acutely or chronically distended bladder. . . . The hemorrhages occur first

in the submucosa of the bladder, then occupy the entire wall and proceed up to the kidney. Thus, urinary retention produces increased susceptibility of the urinary tract to infection. . . . Creevy has pointed out that the inability to void after surgical operations is due to the horizontal position of the patient, the pain of the injured tissues, and drugs, such as the anesthetic or opiate. He has emphasized the importance of early catheterization, if spontaneous voiding six to eight hours after the previous voiding is impossible. He correctly has pointed out the fallacy of relying on cholinergic, vagotropic, or parasympathomimetic drugs or such artifices as audible running water to produce voiding. More often than not, urine so obtained is merely an overflow. A more physiologic emptying may be permitted through a small sterile, well-lubricated catheter, passed gently and frequently enough, or simply left in place for a day. . . . Although the acute urinary retention secondary to many operations, such as the postpartum state, and to laparotomies is a familiar picture, no studies have been recorded of the effects of such procedures or the anesthetics per se on the cystometrogram. The measurements to be described were undertaken with the view of determining the relationship between desire to void, intravesical tension at that point, and the bladder volume required in the immediate postanesthetic period. . . . Ninety-four young men, none of whom had any apparent urologic disease, with ages ranging from 18 to 35 years, were selected. These soldiers were operated on under spinal anesthesia. . . . In nearly every case, the determination was made within two hours after the patient's return from the operating room. . . . Spinal anesthesia temporarily establishes a type of neurogenic vesical dysfunction, probably due to

the anesthetic agent. The bladder wall remains somewhat insensitive to its distending contents, and although the expulsive force of the detrusor may actually not be diminished, the normal strong reflex vesical contractions, which coincide with desire to void, do not appear until the volume of the bladder and the intravesical tension are so great as to invite further pressure anesthesia of the wall, and a continued sensory type of retention which initiates urinary infection. To wait until the bladder is distended to these levels is to court infection.

"If malaise, chills, fever, and leucocytosis follow catheterization after the bladder has been so distended, the blame need not be placed on the catheter. The surgeon must call himself to task for allowing the seeds of infection to become implanted in the bladder wall by permitting distention, pressure necrosis, retention, and reduced sensitivity to pursue their vicious cycle. Early catheterization of patients after administration of spinal anesthesia, and, perhaps, after inhalation anesthesia, is a necessary therapeutic adjunct. . . . It was found that the mean volume of solution and the corresponding mean intravesical pressure required to produce desire to void were extremely high (671 c.c. at 42 cm. water) compared with controls having received intravenous anesthesia. In no case were the intravesical volume and tension within normal limits. This is interpreted to mean that following the use of spinal anesthesia there remains a residual mural insensitivity, coexistent with a decrease in vesical tone." 80 references.

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EID, F. L.: *An Unusual Complication Following Spinal Anaesthesia*. Canad. M. A. J. 53: 55 (July) 1945.

"A man, aged 45 years, [was] admitted to hospital on June 16, 1944.

His attending physician had diagnosed a fibrotic appendix and he was referred for appendectomy. . . . On June 17 a spinal anaesthesia was administered, with 150 mgm. of novocaine dissolved in 2 c.c. spinal fluid. No difficulty was experienced in entering the dural sac, the spinal fluid flowed clear and easily and a satisfactory anaesthesia was obtained. An appendectomy was performed; the patient was altogether thirty minutes in the operating room and left it in a very good condition. . . . The patient was returned to the ward at 10.30 a.m. At 1.40 p.m. he complained of headache and chilliness, and developed shortly afterwards a chill, the temperature rising to 104.2°. He had slight rigidity of the neck, and at 2.30 he vomited, sweated profusely, became drowsy and could not be roused. From then on he became increasingly violent, tried to get out of bed, fought the nurses who tried to restrain him, muttered, rolled and moved about in bed incessantly. He had frequent micturition. Medication by mouth was impossible. Under great difficulties evipal 0.2 gm. was given intravenously, which quieted him to some extent, but the effect lasted for less than two hours. Evipal was then repeated, and again at 3 a.m. It only reduced his violence somewhat and lasted an abnormally short time. At 5.30 a.m. the man was extremely violent, and under the greatest difficulties, with six assistants holding him down, a spinal tap was performed. The spinal fluid was under no increased pressure but was slightly cloudy, with a cell count of 60 cells per c.c. The pathologist reported 'numerous pus cells, no organism seen.' A culture made was negative. An intravenous injection of glucose and saline was started but had to be discontinued as the man was too restless and pulled the needle out, by his movements in bed. . . . We used al-