

operation was done in 1884, and these cases were reported between 1884 and 1898, that is to say, during fourteen years.

During the eighteen months following this, he found reported 67 cases, of which 49 died and 18 recovered. This makes altogether 150 cases, in which there is a recovery rate of 22.7 per cent. In contrast is the estimate of Murchison, that the recovery rate in unoperated cases is only 5 per cent. He says that operation should be done in every case of perforation, unless the condition is such that recovery is evidently hopeless. Perforation occurs quite as often in mild as in severe cases, and possibly even more frequently. One case was operated on twice, with a fatal result; another, three times, and yet recovered. Age seems to have considerable influence on the recovery rate. Analysis shows that from fifteen to twenty-five is the most unfavorable age to operate, while the most favorable periods are over twenty-five, and especially under fifteen.

Sex, too, seems to have considerable influence on the mortality rate. In 121 cases, of which 102 were males and 19 females, 83 of the males died and 19 recovered, a recovery rate of 18.6 per cent. Of the females, 11 died and 8 recovered, a recovery rate of 42.1 per cent. In other words, while the number of operations in males has been over five times as many as in females, the recovery rate of females has been over twice that of males.

Next, as to the recovery rate in the various weeks of the disease. The mortality rate of the second and third week is by far the worst, yet even these two weeks yielded a recovery rate of 16 per cent. In the fourth week this rate is doubled.

Next, as to the time for operation. He claims that the best time is during the second twelve hours after perforation, and even if perforation is diagnosed earlier and there is profound shock, he thinks that operation should not be done until this has passed off. In cases, however, where there is no shock, most surgeons will agree that the abdomen should be opened at the earliest moment. Cushing and Taylor take exception to this, and state that the shock is due to sepsis and not to perforation, and that the quicker the operation is done the better for the patient. Cushing has proposed to operate in what he calls the "preperforative" stage. Keen urges that the surgeon be called in at the earliest moment, when any symptoms indicate possible perforation.

Next as to the use of an anæsthetic. Cocaine is recommended instead of a general anæsthetic. This was first used by Cushing in two cases. He says that local anesthesia is a great step in advance, and that he will never use general narcosis again in typhoid. While cocaine may be used in a large proportion of cases, there are many patients in whom the operation could