

SPINAL CARIES WITH ABSCESS: ANALYSIS OF CASES.

BY ERNEST B. YOUNG, M.D., BOSTON.

It has been the good fortune of the writer to be able to collect 78 cases of spinal caries complicated with abscess, and to obtain reports of the condition of those living at periods of from one to thirty-five years after the beginning of the disease, as well as the date of death of those who have already succumbed. The average time of the reports is about four and one-half years after the onset. With the exception of 18 cases, all the material comes from hospital clinics, as it is among the lower strata of society that spinal caries flourishes. These classes are the ones most liable to trauma and strains from the nature of their employments, while poor and insufficient food, bad air and inability to properly care for themselves make them good subjects for tuberculous invasion. The cases are in no way selected, except that nothing has been included where there was any doubt as to diagnosis. In addition to the cases where it has been possible to obtain full reports, a few have been utilized where the data at hand were known to be correct, even though not quite complete in all particulars.

Age and sex.—It will be seen from the cases considered under this heading, 52 males and 26 females, that the disease throughout life is about twice as frequent among males, although at different periods the ratio changes somewhat. The onset in 38 out of 78 cases occurred before the tenth year. This is undoubtedly due to the fact that both sexes are active and liable to injuries at this time. From *ten to twenty years* the ratio changes very little, but from *twenty to thirty years* the males outnumber the females nearly 5 to 1; for the female has ceased to be active as the male and at this time many of the men are performing the hardest kinds of manual labor. The figures seem to bear out the importance of trauma as an etiological factor in the disease; for as the female becomes less active, the frequency of the disease decreases, while in the male the two periods of greatest liability to injury, childhood and young manhood are each marked by a rise in the number of afflicted. After the thirtieth year, when the epiphyses of the vertebrae are firmly united, its occurrence in either sex is quite rare; yet even during the remaining years of life the males outnumber the females 2 to 1. Only 11 cases have been collected where the first symptoms occurred after thirty years of age. The youngest case was eight months old when the abscess appeared, and the oldest sixty-seven years.

Seat of disease.—Caries of the dorsal spine leads most often to abscess formation. Cervical and sacral disease with abscess seems rare at any time of life. Of 77 tabulated cases there are:

Dorsal	43
Lumbar	31
Sacral	2
Cervical	1

Under ten years dorsal disease is one-half again as common as lumbar; while throughout the remaining years of life the two regions average about the same.

Deformity.—The condition of spines of 77 cases when first seen was as follows:

No deformity	18
Slight "	30
Medium "	16
Great "	13

It would seem that abscess formation has little relation to the extent of the deformity, as those with no kyphos or a slight kyphos far exceed in number the cases with great deformity. The large kyphoses appear almost entirely when the disease begins early in life. After the twentieth year there is only one case of moderate and one of bad deformity. In one case there were two kyphoses of moderate size, one in the dorsal and one in the lumbar spine.

Abscess.—In 83 cases there are:

Psoas abscesses	63 (including 5 double psoas).
Lumbar "	21 (" 2 " lumbar).
Sacral "	2 (1 pointing in pelvis and 1 over sacrum).
Cervical "	1 (pointing in neck).

Psoas abscess is the most common when either the dorsal or lumbar spine is attacked, while double psoas and double lumbar abscesses are quite rare.

Abscesses associated with cervical or sacral disease are apparently quite uncommon.

Psoas and lumbar abscesses, when occurring in the same person, generally point on the same side of the median line; but in some few cases there is a psoas abscess upon one side of the median plane and a lumbar abscess upon the other.

As would be expected, in a few instances the pus has forced its way under Poupart's ligament and in one case has burrowed downward from a lumbar abscess into the superficial fascia of the thigh.

It is impossible to get any reliable data concerning the duration of abscesses or the date of first appearance. Often the patient has been ignorant of its presence even when filling one whole side of the abdomen and pelvis. In 2 cases the abscess has come on during treatment. These are the severe cases and both are dead. The sinuses have remained open for many years in some instances, and in others have closed within a few months. Some have the sinuses heal promptly only to break out again from time to time. Most of the sinuses remain open for a year or two, so far as can be learned, and in many cases, even with the patient in good health, they still persist.

Pain of any amount seems to become a prominent feature in many adult cases only when the abscess has reached such a size as to produce psoas contraction. While in children pain is generally referred to the abdomen, in the adult it is generally referred to the back, there being only two or three adults who have complained of abdominal pain.

Treatment.—In by far the greatest number the abscess has been treated by incision; but some have been collected of aspiration and spontaneous opening, as well as a few where the abscess has remained closed. Of 77 cases, 37 under ten years and 40 over ten years, the treatment was as follows:

	Under ten years.	Over ten years.
Remaining closed	2	8
Spontaneous opening	4	8
Aspiration	2	6
Incision	29	18
	37	40

Two cases included under incision were aspirated, and incised shortly after. One adult and one child have been aspirated many times. One case, which opened spontaneously, was incised later.

Prognosis.—Many of the cases have been treated in general hospitals, which have as a rule no orthopedic department, and hence the after treatment has been either entirely neglected, or only partially carried out. At the same time it must not be forgotten that

this is often the fault of the patient or of circumstances which put him out of reach of skilled attendance.

The reports received from 78 cases at periods of from a few months to thirty-five years from the beginning of symptoms are given below. Ages given always refer to the time of onset, unless otherwise stated:

	Under ten years.	Over ten years.	Total.
Well	3	6	9
Good condition	19	8	27
Fair	4	3	7
Poor	3	4	7
Dead	17	11	28
	46	32	78

The average time from beginning of the disease to the last report, for those under ten years, is three years; for those over ten years, a little more than four and a half years.

Of 10 cases where the abscess remained closed the statistics are:

	Condition at onset.	Present condition.
Well	0	0
Good	3	5
Poor	7	1
Dead	0	4
	10	10

Average duration of disease is nearly four years. One child and 3 adults have succumbed at periods of from four to six years. In 2 cases the abscess is reported to have disappeared.

Spontaneous opening took place in 12 cases. The statistics are:

	Condition at onset.	Present condition.
Well	0	3 (after six, ten and thirty-six years).
Good	1	5 (after two to six years).
Fair	6	1 (after eleven years).
Poor	5	1
Dead	0	2 (after two and four years).
	12	12

Average duration of disease slightly over six and a half years.

Of 8 cases treated by aspiration alone the statistics are:

	Condition at onset.	Present condition.
Well	0	2 (1 after eleven years).
Good	2	1 (after two years).
Fair	2	1 (after six years).
Poor	4	0
Dead	0	4 (3 after one, two and thirty-three years).
	8	8

Average duration of disease about eight years; average time elapsed since operation, three years and two months; out of 4 children 3 are dead.

Incision has been the method used in 48 cases; 32 under ten years and 16 over ten years. The statistics are:

Under Ten Years.		
	Condition at onset.	Present condition.
Well	0	1
Good	3	10
Fair	15	5
Poor	14	3
Dead	0	13
	32	32
Over Ten Years.		
	Condition at onset.	Present condition.
Well	0	2
Good	2	5
Fair	5	1
Poor	9	0
Dead	0	8
	16	16

Average duration of disease in cases commencing under ten years is about six years and ten months;

while of those commencing at beyond this period, four years and two months.

Average time elapsed since operation in the first class is five years and two months, and for the second about three and a half years.

SUMMARY.

Abscess.	No. Cases.	Recoveries.	Mortality.
Remaining closed	10	0	40 %
Spontaneous opening	12	3	16 2/3 "
Aspiration	8	2	50 "
Under ten years	32	1	40 "
Incision, over ten years	16	2	50 "

The prognosis of spinal caries with abscess, apart from the cases where the abscess opens spontaneously, seems to be very slightly influenced by the treatment accorded the abscess, although undoubtedly affected by the proper fixation of the spine.

Considering the series as a whole, we may say that the mortality is about 35% at an average period of three years and nine months after the first symptoms, and that the mortality is slightly greater among those in whom the disease commences before the tenth year.

Unfortunately the number of patients from whom reports have been received is not very large, but undoubtedly the spontaneous opening is the most favorable outcome. When the abscess remains closed, the mortality is almost as large as when treated by incision or aspiration.

There seems to be a decided danger of general tuberculous invasion in these cases, as 3 out of 4 deaths were caused by tubercular meningitis.

Causes of death.—In both children and adults the most common cause of death seems to be a gradual deterioration of whole system, as most reports say: "Failed gradually after leaving the hospital." The causes of death in a few cases where it was possible to get a reliable report are given below: General tuberculosis, 4; amyloid, 1; tubercular meningitis, 3; shock of operation, 2; sepsis and renal, 1; phthisis, 1.

In 2 other cases, both adults, tuberculosis has attacked the genito-urinary system, and 1 is now in the last stages of the disease.

In closing, I wish to thank the staff of the Children's Hospital and the staff of the Massachusetts General Hospital for allowing me the use of their records, and also many friends who have kindly furnished me cases from their private practice.

CELLULOID AS MATERIAL FOR FLAT-FOOT SUPPORTS.

BY ALBERT H. FREIBERG, M.D., CINCINNATI, O.,
Orthopedic Surgeon to the Cincinnati, Presbyterian and Jewish Hospitals.

THE use of celluloid as material for flat-foot supports was first suggested, as far as the writer is aware, by Kirsch. By him, as well as by Schanz, in two subsequent publications, the advantages and disadvantages of its use were pointed out. Lightness, the absence of any tendency to corrode, cleanliness therefore, and the ease with which the plates can be made innocuous to foot wear have been considered its advantages; in addition to this a certain elasticity which is necessarily lacking in metal supports and which is said to contribute toward the comfort of the patient as well as the efficiency of the brace.