we reporting results of other forms of therapy tried after it was decided to dismiss them from the discussion groups. The classification, "normals," includes physicians and other professional people who attended the groups for educational purposes.

As might be expected, one patient suffering from schizophrenia, paranoid type, seemed to be made worse by the discussion groups. The other case of schizophrenia mentioned appeared to show benefit for a few months, but refused to return to the groups and several months later experienced a reactivation of his symptoms. We have listed him as unimproved.

Aside from any direct benefit that might be said to be due to the discussion groups themselves, there was, with one exception, a marked change in the attitude of both the patients and their relatives toward psychotherapy in general. They became more frank, more coöperative, more tolerant of temporary set-backs, and less prone to demand immediate symptomatic benefits. Therefore, supplemental psychotherapy, whether given during the same period as that of group attendance or subsequently, becomes much easier. This increased willingness to coöperate with the physician, and to accept some of the responsibility for the solution of personal problems, seems to parallel the development of group spirit. Members of the group are taught from the beginning to accept responsibility, not to remain passive. Disregarding all other considerations, this change in the attitude of the patients and their relatives makes the discussion groups well worth while. Some of the patients in this series could not have been treated by individual methods alone. They reacted favorably only to group therapy, or to the administration of treatment after attending the discussion groups.

SUMMARY AND CONCLUSIONS

A method of giving psychoneurotic individuals treatment in groups has been described. The results compare favorably with those of other psychotherapeutic methods which have been published.

The advantages are: Adequate therapy can be given to those who cannot afford frequent individual office visits.

Many employed people can be seen without interfering with their regular hours of work.

Reëducation of relatives and friends can be done simultaneously with the patients' psychotherapeutic régime.

The patients obtain practical experience in group adjustment and learn to accept responsibility for solution of problems.

The psychiatrist has an opportunity to observe the patient in a social situation.

Indirect suggestion can readily be given.

Professional people, such as doctors, can be treated more easily than by other methods.

The group spirit which develops carries the individual over temporary set-backs.

Patients are aided in starting outside activities.

490 Post Street.

CLINICAL NOTES AND CASE REPORTS

EQUINE ENCEPHALOMYELITIS

A CLINICAL STUDY OF A SMALL OUTBREAK

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BEING the case histories of four proved cases, one probable case and one case of encephalitis lethargica occurring in the same hospital in the same relative period of time.

Horse encephalitis is not an uncommon disease in the San Joaquin Valley. Horse encephalitis in humans, in the limited experience of the authors, does not seem uncommon either.

Evidently a central nervous system disease, with unusual onsets, unusual symptom and sign complexes, it leads to a follow through on these cases, with a resultant positive diagnosis.

Anterior poliomyelitis, encephalitis lethargica, equine encephalitis, and benign lymphocytic meningitis, were all considered as diagnosis in these cases. Positive diagnosis was made through Dr. Karl Meyer at the Hooper Foundation by means of specific blood reactions made at the Foundation.

The four proved cases—the one probable case and the one case of encephalitis, St. Louis type—are given to show the similarity in common findings and the difficulty of diagnosis without specific laboratory aid such as that obtained at the Hooper Foundation.

REPORT OF CASES

CASE 1.—White male, age 15.

C. C.—Headache, backache, soreness in neck and malaise four days. Weakness in right leg one day.

P. I.—Four days before entry he went to a moving-picture show, and on leaving had a headache which continued unabated. Since, he had gradually developed soreness in the neck, and backache. The day before entry bladder paralysis developed, coupled with weakness in right leg. He lived on a farm where two horses, which had not been sick, were used.

P. E.—Positive findings of distended bladder—up to umbilicus. Right arm and forearm questionably weak. Paralysis of right leg, complete in both flexor and extensor groups. Reflexes were normal on left, decreased on right and absent in right leg.

Temperature on entry, 102 degrees; pulse, 104; respiration, 20.

On the third hospital day the temperature, pulse, and respiration gradually fell to normal and remained so. Bladder function returned, and there was a slight improvement in right leg weakness.

Laboratory:

First Day.—Spinal puncture on entry: fluid was clear; pressure, 196 millimeters of water. Cell count, 138; 99 per cent lymphocytes.

Second Day.—Cell count, 25; 95 per cent lymphocytes; spinal-fluid sugar, 71 milligrams per 100 cubic centimeters of fluid.

Third Day.—Cell count, 78; 96 per cent lymphocytes.

Fifth Day.—Cell count, 20; 100 per cent lymphocytes.

Sixteenth Day.—Cell count, 12; 100 per cent lymphocytes.

Urine: On entry, urine was negative. Developed cystitis during catheterization, which had cleared on discharge from hospital.

Blood: Was negative for St. Louis type of encephalitis, and positive for equine encephalitis.

On discharge, could not lift right heel off bed.

* * *

CASE 2.—White male, age 19.

C. C.—Pain in left chest for eight days. Chills for one.

P. I.—Eight days before entry, while climbing stairs, he had sudden sharp pain in chest, with dyspnea. Pain continued, but not severely enough to keep the patient from work. A chill the night before entry forced the patient to bed.

P. H.—Patient had come to California from Tennessee a little over two months before entry, and had been working on ranches in the San Joaquin Valley. For the past two weeks had had a job in a hay-field, working with four horses, none of which were sick.

P. E.—First Day: Physical examination was negative except for chest, where friction rubs were heard at both bases on entry. Breath sounds were normal. The patient was having much chest pain, although chest plate was negative.

Second Day.—Complained of headache and pain in back. Diaphoresis was profuse. Developed bladder paralysis and had to be catheterized. Spinal puncture was done. On the fourth hospital day, bladder function returned. Patient's temperature, which was 104 degrees on entry, came down by lysis to normal on the fifth hospital day. However, the patient ran a daily elevation, at times as high as 101 degrees, until five days before discharge on the twenty-ninth hospital day.

Pleural friction rub heard on the first day was not heard on the second day. Soreness and stiffness of neck found, and suggestion of Kernig's present on second day.

Laboratory:

Spinal on second day: pressure, 150; fluid clear; cell count, 2; 1 lymphocyte; sugar, 67 milligrams.

Third Day.—Cell count, 3; all lymphocytes.

Sixth Day.—Cell count, 21; 97 per cent lymphocytes.

Eighteenth Day.—Cell count, 16; 100 per cent lymphocytes.

Wassermann was negative.

On entry: Hemoglobin, 75; white blood count, 15,100; 77 per cent polymorphonuclears.

Blood serum was positive for equine encephalitis, and negative for the St. Louis type.

* * *

CASE 3.—White male, age 22.

C. C.—Headaches.

P. I.—Entered hospital with no other complaint but persistent headaches and malaise.

P. E.—Physical examination revealed soreness of neck without true rigidity. There was a suggestion of Kernig's and bladder paralysis on entry. Examination was otherwise negative, and bladder function returned on second day. Headache persisted for nine days after entry. Temperature on entry was 101.6 degrees, pulse 108, respiration 22. On ninth hospital day temperature hit normal, to remain.

First Day.—Spinal on entry: fluid clear, cell count, 9; all lymphocytes.

Third Day.—Cell count, 55; 95 per cent lymphocytes.

Seventeenth Day.—Cell count, 37; 97 per cent lymphocytes.

Urine was negative.

Spinal fluid was negative for both equine and St. Louis type of encephalitis.

* * *

CASE 4.—White male, age 37.

C. C.—Since tonsillectomy, three weeks before entry, for peritonsillar abscess, had been getting weak, and for three days before entry had chills and fever. Past history of working two horses on truck farm, which was infested with mosquitoes.

P. E.—Patient looked toxic and was sweating profusely. His throat was well healed. Some râles were heard at the base of the left lung. Heart was negative. No stiff neck nor Kernig's present.

Course: On second hospital day the patient complained of soreness in his neck and a headache. He was sleepy and took nourishment poorly. Headache persisted up to the tenth day, with no complaints from that day to discharge on the twenty-first day.

Temperature on entry was 103.6 degrees, but fell abruptly to normal on the second evening and remained so for the rest of his hospital stay. The pulse was consistently slow (between 60 and 80) except on entry, when it was 108 degrees. Respirations were 26 on entry, but as soon as the temperature reached normal, respirations fell to 16 and 18.

Laboratory: Urine negative, Wassermann negative.

Spinal fluid on third hospital day showed 107 cells with 97 per cent lymphocytes.

White blood count on sixth hospital day was 9,900 with 73 per cent polymorphonuclears and 6 per cent eonsinophils.

Spinal fluid on seventh hospital day showed 111 cells with 98 per cent lymphocytes.

Blood was positive for equine encephalitis, and negative for St. Louis type.

* * *

CASE 5.—White female, age 32.

C. C.—Chief complaints on entering hospital were frontal headache for four days and drowsiness for two days. Family and past history had no bearing on present illness.

P. I.—Patient was working in peaches when she started to complain of headache, which became worse next day. On the third day of illness, she complained of being sleepy and from that time on remained in bed. On the fifth day she was stuporous and became irrational in the evening. On the sixth day she entered the hospital. There was no history of proximity to horses.

P. E.—Young female lying in bed; restless and irrational. Pupils equal and react to light. Examination of fundi impossible, because of mental condition of the patient. Oral examination, normal. Chest was clear. Heart normal. Blood pressure, 102/84 and of poor quality. Abdominal examination was negative. No muscle weakness noted. Reflexes were equal and active. Suggestion of Kernig's present. Spinal puncture revealed clear fluid under pressure of 140 millimeters of water, and 247 cells found, of which 95 per cent were lymphocytes.

White blood count, 10,100; polymorphonuclears, 77; lymphocytes, 23.

Sedimentation time was 23 millimeters fall in one hour.

Urine showed a trace of albumin, with a few granular casts.

Spinal puncture on the fourth hospital day revealed clear fluid under 180 millimeters of water, and there were 80 cells in spinal fluid, of which 97 per cent were lymphocytes. Spinal fluid sugar was 68.8 milligrams.

Wassermann was negative.

Spinal fluid was positive for horse encephalitis, and negative for St. Louis.

The temperature came down from entry level of 102.8 degrees by lysis to normal on the fourth hospital day and remained so. The pulse came down from 120 to 80.

Course: Patient was irrational on entry and had to be catheterized the first two days in the hospital. On the fifth day she became cognizant of her surroundings. At about this time she started to complain of nausea and dizziness. A slight nausea persisted up to the time of discharge. At the time of discharge the patient was nervous and had the suggestion of a "Parkinsonian mask."

* * *

CASE 6.—White female, age 15.

C. C.—Pain in the back and left side, one day; headache, one day; weakness in arms and legs, one day.

P. H.—Patient had been living in fig camp for one week, where two horses were used.

P. I.—On morning of entry, the patient had a sudden onset of pain in the left flank and back, with a slight headache. About an hour later a gradual weakness of arms made her unable to lift them. In the afternoon her legs began to weaken. Last B. M. at 9 a. m.

P. E.—Patient's speech was thick, although palate was normal. Bilateral weakness of deltoids, biceps and all other upper extremity muscles completely out. No headache or neck stiffness. Bladder was distended to umbilicus. Complete flaccid paralysis of lower extremities. Kernig's were negative. Patellar reflexes were absent. Incontinent of feces. The patient continued worse and never regained bladder control. Paralysis progressed to involve intercostal muscles.

Patient had two convulsions on the morning of the eighth hospital day, and died during the third convulsion.

Temperature on entry was 103.4 degrees; pulse, 100; respiration, 20.

Temperature remained high the first three days: 104

degrees; 105 degrees; down to 101 degrees, then 105 degrees at the time of death.

Spinal punctures: On entry, fluid clear; pressure, 110 millimeters of water; found 3 cells; 1 lymphocyte; sugar, 72 milligrams.

Third day: One cell; lymphocyte.

Blood: Wassermann was negative.

Red blood count, 3,490,000; 65 per cent hemoglobin.

White blood count, 14,350; polymorphonuclears, 79.

On entry: Hemoglobin, 72 per cent; white blood count, 12,750; urine was negative.

Blood was positive for St. Louis type of encephalitis, and negative for equine encephalitis.

COMMENT

From the foregoing, it would seem that the diagnosis of encephalitis equinus can be only a provisional diagnosis. While the diagnosis may be suspected because of the unusual sequence of events or the picture of a central nervous disease that does not quite fit poliomyelitis or epidemic encephalitis, positive diagnosis rests on available blood reactions.

Bladder paralysis and pain (not stiffness) in the neck were the most constant findings. Frontal headache was also present in most. Suggestive Kernig's were found in most cases.

In review of the cases, the mode of onset varies in every case, *i. e.*, it may be sudden or gradual.

The temperature curve was not the same or at all similar in any two cases, but all had temperature elevations. The white counts varied from 9,000 to 16,000, and the polymorphonuclear percentages varied from 69 to 91.

The spinal fluid cell counts in all cases diagnosed, horse encephalitis varied from 3 cells to 247 cells, but in no one case was the highest cell count less than 21 cells.

The one case of St. Louis type encephalitis showed three cells on first spinal, and one cell on subsequent spinal.

The differential spinal fluid cell count was always 95 per cent, or over, lymphocytes, including the encephalitis lethargica.

Spinal fluid sugar in all cases was normal.

Blood serums as reported by the Hooper Foundation were either positive for encephalomyelitis equinus or St. Louis type, never for both. In one case the report was negative for both types. This case occurred while two other cases of horse encephalitis were in the hospital; the picture was very similar and diagnosis was made in spite of negative blood finding at the Hooper Foundation.

SUMMARY

Encephalomyelitis equinus is not an uncommon disease, especially in the San Joaquin Valley. The disease may easily be mistaken for anterior poliomyelitis or encephalitis lethargica. In the cases presented, physical finding of bladder paralysis, soreness of the neck, frontal headaches, and suggestive Kernig's were most constant. Spinal fluid cell count varies widely, but lymphocytes are always predominant, while spinal-fluid sugars are always normal.

All areas of Merced County, from which these cases came, were heavily infested with mosquitoes, while about 50 per cent of the patients had no contact whatever with horses.

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A NEW TYPE OF BELT FOR SPLINTING THE CHEST*

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RECENTLY I designed a new type of belt for use in unilateral pleurisy or rib fracture, consisting of strong elastic for the sound side of the chest, and material for the side involved. One shoulder strap prevents the belt from sliding down. On to each end of one-half are sewed three long canvas straps, and on to each strap is threaded a strong eye which can be looped over hooks sewed onto the ends of the opposite half. By pulling on the straps the belt can be tightened both in front and behind.

One might think that a belt containing elastic in any part of it would allow both chests to expand equally, but this is not the case. I tested the belt first on a patient with fracture of the right seventh rib. With the belt in place the breath sounds on the right side above and underneath the belt were greatly diminished, but were normal on the left; whereas, when the belt was off the breath sounds were plain on the right, proving that the diminution of breath sounds in the first instance was not due to natural splinting following a fracture. Also, we viewed the chest under the fluoroscope with the belt in place, and the movement on the right was greatly restricted. The explanation for this fact is that friction between the skin and the belt prevents the belt from sliding, and therefore only the elastic side allows chest movement.

I have used the belt both in pleurisy and rib fracture, with relief of pain in both. The advantages over adhesive need no comment.

Other belts for splinting the chest are on the market, but they contain a strip of elastic on each side, allowing equal, though restricted movement of the two sides. An elastic bandage wrapped

* From the Department of Medicine, University of California.

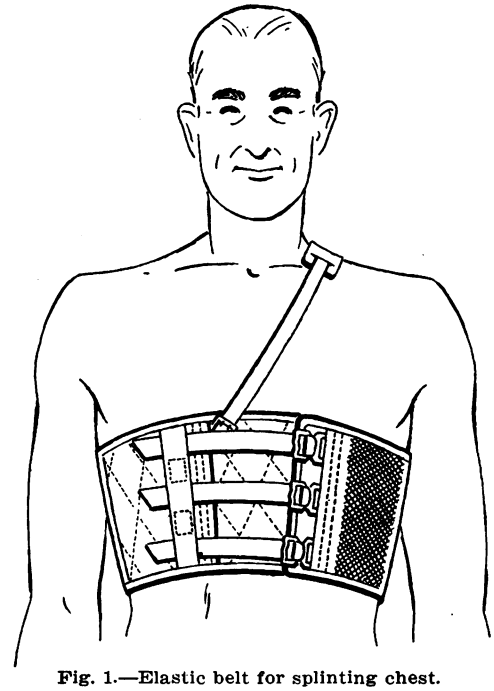

Fig. 1.—Elastic belt for splinting chest.