tions and calcification of the arteries with foci of old hemorrhages. The modern pathologists show the occluded capillaries of the brain, the thinned and thickened walls of the arterioles and the deranged vascular circulation with evidences of local inflammatory action, also from the new method of staining the cell degeneration and sclerosis of nerve fibers. The psychopathologist with instruments of precision shows the functional palsy of both the senses and the psychical functions of the brain. The chemicopathologist points out the complexity of alcohol, depending largely on the substance from which it is made and its special peculiar action on cell and tissue, producing new toxins with new effects and localizing them in certain sections according to unknown favoring causes. The anesthetics so marvelous in their effects due to the ethers of alcohol are of the same class and their effects are equally pathologic. These are all intimations of a new field for the exact study of the action of alcohol on the body which awaits farther and more exact studies. Some of the conclusions which I wish to make prominent are as follows:

(1) In all cases of inebriety there are marked changes in the capillary and vascular system of the brain. The walls of the vessels show fibrinous deposits and sclerosis. The nerve cells and dendrites are altered and retracted, in some cases permanently destroyed; in all inebriates shrunken and disintegrated states exist.

(2) The liver, kidneys and heart show diminution or enlargement with fibrous and fatty deposits. Both the organic and functional activity of the organ are changed and sclerotic states are present. Conditions of starvation and poisoning exist in all cases.

(3) Pathologic changes are apparent in the paralysis of the sense organs and the higher psychic functions of the brain. These conditions are so common following the use of alcohol, sometimes in its moderate use, but always when taken in excess, as to constitute a pathology that is traced directly to alcohol as the most prominent cause.

(4) The recent researches into the chemicophysiology action of alcohol on the heart, blood vessels, cells and nerve fibers show a paralyzing and eroding action that can not be mistaken for any other cause.

The final conclusion is that the peculiar brain and nerve wreckage so commonly seen in persons using alcohol is due to the specific cause, alcohol following a uniform line of degeneration which is traceable with more or less exactness.

DISCUSSION.

DR. ALBERT E. STERNE, Indianapolis—I would take exception to the statement made by Dr. Crothers that the parenchymatous changes in the liver are primary. I would ask him whether such changes are not always secondary to an inflammatory process.

DR. T. D. CROTHERS, Hartford, Conn.—Both primary and secondary. It may be either one or the other, according to the individual. There is no uniformity.

Secret Remedies.—Why can not physicians write their own prescriptions and adapt their remedies to the ever-varying exigencies of disease? Why should the vender of proprietary and secret remedies be upheld by so many of the profession, when Edward Jenner, after twenty-two years of laborious experimentation and research, freely gave the priceless boon attained to mankind, and when he could have made countless billions of money from the whole world by dispensing it as a secret and sovereign remedy against a loathsome and desolating scourge?—William T. Howard before the Maryland Medical Society.

CARCINOMA OF SPINE AND MENINGES SECONDARY TO CANCER OF THE BREAST.*

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Ambulance History.—Susan R. White, aged 70, housework, admitted to Philadelphia Hospital, Feb. 8, 1902. Duration of illness: four months; one month in bed. Symptoms: Pain in chest, pain in back, vomiting and diarrhea, severe pain over precordia and stomach, sharp pains in the leg at one time. She has had a lump in the breast for three years. Bowels and urine are not under her control. Both legs are paralyzed; anesthesia is present up to the waist line.

Hospital Record.—(By Dr. Blayney, interne,) Chief complaint: Anesthesia and paralysis of the lower extremities.

Family History.—One sister died of inflammation of the lungs (phthisis it is supposed); one sister died of scarlet fever; another of "cold"; one brother died of pneumonia.

Past Medical History.—She had the ordinary diseases of childhood, and rheumatism.

Present Illness.—Last November she was taken with pain in the hips; after the pains ceased the track of the pain would be very sore. The anesthesia and paralysis came on suddenly. She lost control of feces, then of urine. She lost control of feces before the paralysis came on. She had pains in the shoulder and back, had a creeping sensation in the left side which became better on pressure. She was sleepless for three weeks before entrance to hospital, and had the dry mouth of dyspepsia.

Physical Examination.—Emaciated, aged white woman; chest emaciated; heart seems to have a systolic murmur; lungs resonant; liver and spleen apparently normal; pupils seem dilated, haze around edge of cornea; pulse soft, regular; tongue dry, with light-brown coat; extremities atrophied; knee-jerk absent in the left leg, present to a very slight extent in right. Anesthesia exists to waist or slightly below umbilicus. She said she felt a pin stick her on the foot of right leg. She can move toes of right foot very slightly, those of left foot not at all. Plantar reflex is gone. She has incontinence of urine and feces, and has a sore over crest of ilium on the right side, also a sore over the sacrum. She has a nodule in left breast, and looks pale and emaciated.

February 21.—Patient does not feel the prick of a pin on either sole of the foot, but does have occasional extension reaction. Knee-jerks are absent. Supra-orbital reflex is present. Pupils respond normally. Patient is very feeble and cachectic. Looseness of bowels exists, probably largely due to relaxation of sphincter ani muscle.

February 22.—Patient is becoming more cachectic and growing weaker. There is a great tendency to decubitus where pressure is slightest. Does not feel when sole of foot is touched, but Babinski sign is present.

February 27.—There is a great humping of the muscles of lower extremities at site of blister which was present on admission; over right ilium there is a large bed sore. Patient is very weak, and is taking very little nourishment.

Detailed History.—(As taken by Dr. F. Savary Pearce.) The patient was always well up to last November (three months before admission), when she complained of pain and weakness in her legs, which came on gradually, and also of pain in her back; there was no history of any injury. She has been confined to bed since. For the last ten days she has suffered from nausea at times; retching and severe diarrhea. She has complained of pain radiating across the chest from one shoulder to the other; also of pain in

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the lumbar region, which she declares is constant. She has had no control of bowels or bladder for eleven days; she has not been sleeping well.

Examination.—There is paralysis of lower portion of body; legs are flaccid; no sensation to touch, heat or pain from umbilicus down. Knee-jerks are absent on both sides, as are also the Babinski sign and ankle clonus. Pupils are slightly dilated, equal, react to light and accommodation. Tongue is protruded straight; no tremor; slightly coated. She has a hard nodular tumor in the left breast, upper and outer portion, for the last three years. It has not been growing rapidly lately; there is no pain unless she hurts it. She had a bed-sore in sacral region on admission. Heart sounds are weak, slight accentuation of second sound; somewhat irregular. Arteries are atheromatous; arcus senilis. There was marked anterior curvature of spine beginning at ninth dorsal and extending to vertebra prominens; considerable tenderness over lowermost portion of curvature, but no true kyphosis or palpable tumor about the spine. Anesthesia posteriorly extends to a horizontal line just below the iliac crests, in front to a horizontal line apparently one-half inch above umbilicus. There is an ulcer in the right lower quadrant of abdomen just internal to anterior superior spine. Patient breathes well by diaphragm. There is a diffuse semicrepitant mass in the epigastric region extending from the umbilicus up three fingers' breadth and shading off in lateral region; it seems to be slightly movable and to move with respiration. The sensation of heat goes below that of sense of touch. She has had considerable pain in the past in the lumbar region. Tapping patellar tendon gives pain in the back. Atrophy of all extremities is symmetrical. There is a slight tendency to extension of toes.

Diagnosis.—Compression myelitis or metastatic growth with compression. *Clinical Diagnosis.*—Myelitis.

March 21.—Patient had grown very weak, and toward the last refused all nourishment. Pain has been much less marked the last few days. She died this morning.

Autopsy.—(Made by Prof. Joseph McFarland.) The woman was greatly emaciated. Pleural sacs contain very little fluid; cavities dry in appearance. Left pleura contains very strong adhesions and can only be separated with difficulty. Right contains only a few adhesions. On both pleuræ the parietal portions were dotted over with small tumors, from the size of a pea to one centimeter in diameter, these being far more numerous in right pleura, there being only two or three in the left side and the right containing eight or ten. On section these were found to contain a semisolid cheesy material. These tumors did not involve the visceral pleuræ.

In left breast, about one and one-half inches to left of nipple, was a hard tumor about two inches in diameter. Skin strongly attached to tumor, but said tumor was freely movable over underlying tissues. On section tumor was found to cut with resistance, having a grating sensation; cut surfaces pale in color and very resistant to touch; skin strongly adherent to growth, being incorporated in its substance. (Saved for microscopic study.) The fourth and fifth ribs (left side) beneath site of tumor were softened, and on pressure a cheesy material would appear on their surfaces. (A portion of fourth rib saved for further study.)

On section of vertebral column and removal of cord there was found in middorsal region a small portion of cord about 0.5 centimeter in length, which was softened in appearance and to the touch. Above and below this portion of the cord for some distance there were strong adhesions; also the vertebrae in this region—four or six in number were softened in their bodies—a probe being readily thrust into them, showing distinct evidence of disease of the bones.

PATHOLOGIC FINDINGS (BY DR. A. C. BUCKLEY).

The interest, from a pathologic standpoint, centers about the spinal cord and its membranes. On gross examination there is to be seen on the anterior surface of the dura a mass of neoplasm about 5 mm. in thickness,

extending from the tenth to the twelfth dorsal segments. The dura itself is considerably thickened. There can be seen clearly defined an ascending degeneration, limited to the postero-median columns, throughout the cervical region, and in the dorsal region as far as the eighth segment. At this level the lesion extends laterally, involving the postero-external columns, from which the gray substance can not be differentiated with the unaided eye. In the lower part of the tenth and the upper part of the eleventh dorsal segments there is an apparent diffuse myelitis. Below this there are distinct lateral lesions (descending degeneration).

The Neoplasm.—The pathologic material, consisting of the primary breast tumor, a fragment of the fourth rib and the spinal cord, was prepared as follows: The tumor and the affected rib sections were stained with hematoxylin and eosin; the cord sections treated with hematoxylin-eosin, nigrosin and the Weigert-Pal methods of staining. The sections from the primary growth show it to be of a pronounced scirrhotic type of carcinoma; indeed, in the part of the growth examined the connective tissue far exceeds the epithelium.

Sections made from the affected rib show the cancellated substance of the bone to be entirely replaced by a mass of carcinoma cells, which in many places have a distinctly alveolar arrangement, the epithelium approaching the columnar type. The compact portion of the bone is reduced to a mere shell. Where the bone has been reduced to small osseous islands, there are clusters of epithelial cells within the bone substance.

The neoplasm, in all probability, affected the rib by direct extension, since it occupied a position immediately beneath the primary tumor.

The pathology of the spinal cord closely resembles that of a similar case which I have reported and to the full description of which the reader is referred.¹

Cervical Region of the Cord.—In sections taken at the highest part of this region the changes are pronounced but not widespread. The pia is thickened; the anterior sulcal vessels thickened, though the intima appears normal. The trabeculae formed by the pial extensions are much stouter than normal, and there is a general interstitial overgrowth in the entire cross-section of the cord. The nerve fibers in the white matter of the postero-median columns are distinctly degenerated, as is shown by the Weigert-Pal method of staining, the nerve fibers being replaced by a neuroglial overgrowth. The nerve roots are normal.

Lower in the cervical region (about the third segment) the amount of degeneration in Goll's column is greater than that in the above sections, and the nerve roots contain an interstitial overgrowth of fibrous tissue and round cells. Specimens stained with nigrosin show the axis cylinders to be intact in the nerve roots. The gray substance shows no distinct changes other than vascular dilatation and a slight round cell infiltration. The central canal is not patulous, being occupied by a mass of small round cells.

Dorsal Region.—The lower segments contain the greatest amount of destruction; the tenth, eleventh and twelfth segments. The upper half of the eleventh segment contains very few normal nerve fibers, there being practically a transverse myelitis. The membranes are thickened and the nerve roots degenerated to a greater or less degree, no doubt having been affected by the inflammatory process in the meninges. The muscular

1. Jour. of Nerv. and Mental Dis., April, 1902.

tunics of the blood vessels in the nerve roots appear to have undergone a hyaline degeneration, as they stain very faintly. Other vessels, such as the sulcal vessels, in the same sections stain well. On the anterior surface of the dura there is a mass of epithelioid cells, corresponding to the neoplasm mentioned above, which contains elements similar to those in the breast growth and the affected rib. The cells are densely arranged in stout bands of fibrous tissue. In some areas there is a distinct alveolar arrangement.

The degenerative process affects chiefly the crossed pyramidal tracts in the lower half of the eleventh and in the twelfth segment. There is a marked vacuolation of the white matter and round cell infiltration. A slight interstitial overgrowth and increased vascularity are the changes in the gray substance in the dorsal part of the cord.

The position of the greatest amount of destruction to the cord substance is in the upper part of the eleventh segment, in which there are comparatively few normal nerve fibers in the entire cross section. There are scattered patches in the lateral and posterior columns, in which the destructive process has progressed very rapidly, as is evidenced by the presence of masses of granular debris instead of the vacuolation and interstitial overgrowth described above.

Lumbar Region.—It will be noted that following the transverse myelitis in the eleventh dorsal segment, there was an ascending degeneration; likewise below the level of greatest destruction, there follows, as usual, a descending degeneration. This in the lumbar region is not so marked as in the upper segments. In sections at the lumbar swelling the greatest change occurs in the nerve roots. The blood vessel in the fascicles are dilated and filled with blood. The majority of the nerve roots are the seat of an interstitial overgrowth varying in degrees, and much more marked on one side than on the other.

CONCLUSIONS.

We submit the following thoughts in concluding the study of this case of secondary carcinoma of spine and meninges, viz., the undoubted metastatic origin of the bony and meningeal growth from the tumor of the breast as shown by the alveolar arrangement of the cancer cells in all situations affected.

Secondly, from the necessarily imperfect clinical history (since the patient was apathetic and in extreme asthenia and cachexia when admitted to the hospital) it would seem that pain of root irritation of girdle type was the most prominent spinal symptom from the first, and was persistent.

Therefore, in the diagnosis of spinal meningeal growths, this case (with another of pedunculated spinal tumor already reported) would go in evidence that pain from the outset is an important sign of such secondary nervous invasion.

DISCUSSION.

DR. H. T. PERSHING, Denver—I have seen a case of recurrent carcinoma of the left breast followed by symptoms of myelitis involving the dorsal region of the cord and causing complete paraplegia, with loss of control of the bladder and bowels. There was some pain, but less than I expected in such a case.

DR. F. S. PEARCE—I am sorry I can not give a more accurate clinical study of this case, but when the patient was brought to the hospital she was practically unable to describe her symptoms and a thorough examination record was out of the question. In a case which I reported before the Philadelphia Pathological Society there was a primary growth involving the cord, and the patient complained of a considerable amount of

persistent pain radiating about the body. The symptom pain may possibly assist us in differentiating between primary myelitis and the secondary form, due to metastases involving the meninges, as in the case I reported in this paper. More accurate diagnostic marks are what we must seek if we are to do these sufferers any good through surgery.

REPORT OF TEN CASES OF MORPHINISM.*

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The cases here reported have been selected from among many others which perhaps might be in themselves more interesting; but it has been my aim to select only such as would demonstrate the fact that many of the cases which appear to be the most hopeless will, when properly treated, become good and respectable citizens. A certain percentage of these patients may be restored to perfect health, physically, mentally and morally, and will remain so, regardless of the quantity taken, the length of time used, the manner of administration or the age. Just what that percentage is I do not know. It is with me an utter impossibility to even venture a guess as to who will remain free from the addiction and who will, as soon as the opportunity presents itself, relapse into the former condition. Being unable to distinguish between them, there remains only to do as we would with patients suffering from typhoid fever or pneumonia—treat every case and hope that he will recover and will not relapse. In reporting these cases I will give only a short description and history of each one, and I will not discuss treatment further than that they were treated according to the methods that I have previously described¹ to this section.

CASE 1.—Mr. F. F., aged 21, single, occupation painter, was admitted to the U. B. A. Hospital in the fall of 1895. His arms and legs were covered with needle abscesses, and each leg was wrapped in a flax-seed poultice from the ankle to the hip and each arm from the wrist to the shoulder. He was using this pus-covered territory for taking the hypodermics, and consequently made an abscess with nearly every injection. At the time of his admission he was using 60 grains of morphin hypodermically every twenty-four hours, having chills and fever, with a temperature going as high as 105. Thirty or forty abscesses were freely opened, and he had no further trouble with the chills and fever. He had been addicted to the drug for about four years. The morphin was reduced to 1/120 gr. at the end of about 8 weeks, when it was entirely withdrawn. He remained in the hospital six weeks longer, when he was discharged and soon went to work at his trade. He has since married, and is the father of one healthy child. His childhood was not spent in the best of homes nor his youthful days with good associates, nevertheless he is now an industrious man and a good citizen. He appears to be in perfect health and tells me that he never thinks of morphin more than as though he had never used it.

CASE 2.—Mrs. M. N. came for treatment in the spring of 1895; aged 30, married, general health good, occupation landlady, had used the drug six years. At the time of admission she was taking by mouth about 15 grs. of morphin per day. Five weeks were occupied withdrawing the morphin, and she remained two weeks afterward. A short time after her return home she was taken with sciatica. Her physician was true to her and did not give her any narcotic, but a friend and neighbor, who was an addict, after offering her morphin several times, finally persuaded her that one dose would do no harm and would give her great comfort. This manner of talk

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Nervous and Mental Diseases, and approved for publication by the Executive Committee: Drs. Richard Dewey, H. A. Tomlinson and F. W. Langdon.

1. THE JOURNAL A. M. A., Nov. 16, 1901, p. 1292.