

left the hospital with an excellent cicatrix a month after operation. The microscope demonstrated the tumor to be cancer. About one year later the patient returned with several nodules in and under the skin, especially abundant on the right side of the thorax and the upper abdomen. Microscopic examination of those nodules was not made, but their malignant nature was beyond question; there was a diffuse infection of the skin. A thorough operation being impossible, she was advised to have double oophorectomy, which was not accepted; however, four years later, the patient wrote that since her menopause the nodules had disappeared, and her general condition improved. She had had no treatment; she had simply replaced her usual drink, beer, with lemonade. A minute examination of the patient fully confirmed her words."

(W. A. B.)

HODGEN'S SPLINT.

Dr. Geo. S. Brown, of Birmingham, Ala., in *Surgery, Gynecology and Obstetrics*, for May, under treatment of fractures of the thigh or other painful affections of the lower extremity, discourses at length on his improved Hodgen's splint for these conditions.

The splint conceived by Hodgen was a modification of the Nathan Smith anterior splint, but as described by him was difficult to keep in order and troublesome to adjust. These are perhaps the reasons for the limited use it has been given. The principle of the splint is "to suspend the limb from the bed and to utilize the weight of the limb in making extension." The amount of pull depends upon the weight of the limb and the angle the suspension cord makes with a perpendicular dropped from the point of suspension.

The points of improvement over the original Hodgen splint as described and pictured in many text-books, are:

First—The substitution of a solid piece of

cloth for the roller bandage to support the limb.

Second—The use of four separate pieces of cord with "tent blocks" on each instead of two supporting cords.

Third—Measuring the amount of traction by means of an ordinary spring scales.

Fourth—Elimination of the foot-block of Buck, attaching the adhesive plaster which has been applied to the limb to two wire loops at either corner of the distal extremity of the frame.

The splint is made of 3-16 inch iron or No. 4 wire, all in one piece except the loop at the proximal end. The author does not, as has been suggested, use a "right" or "left" by making the outer side of the frame longer than the inner, nor does he use the adjustable length. A stock of three lengths will serve every purpose.

The frame of the splint should be at least two inches longer than the limb, but will answer well if four to six inches longer. The distal extremity is about four inches wide and the proximal about six, the ends of the latter being connected by a loop or arch sufficiently large to pass well over the limb. There are six small loops of smaller wire soldered on the splint. Two at either angle of the distal extremity for the attachment of the adhesive which has been applied to the limb, and for the attachment of the muslin hammock. The remaining four loops are for the support of the splint and are attached, two on either side, to the frame; the two proximal loops being about seven inches from the perineum or proximal extremity of the frame, the two distal about twenty-one or twenty-two inches from the proximal extremity. The supporting cords are of hard one-eighth inch material and are equipped with tent-blocks. These cords are held by the hook of a spring scales, which in turn is fastened to a large sash-cord and tent-block hanging from a pulley-wheel in the ceiling. Before pinning the muslin hammock, the splint is bent to an angle of about 170

degrees opposite a point the knee will occupy when the limb is in place in the splint.

The limb is prepared by cleaning and shaving from the foot to a few inches above the knee and after drying, adhesive plaster two or three inches wide is applied to either side of the limb from above the knee to below the ankle, the last few inches being folded back and stuck so as to protect the malleoli. To these ends are pinned about a foot of roller bandage. A spiral reverse bandage is then thrown about the limb to reinforce the adhesive.

The limb is prepared by cleansing and shaving traction being kept up while lifting the leg. The splint is pushed well up against the perineum, the adhesive plaster of limb passed through the loops on the distal extremity and fastened. The splint is raised by passing the four small suspension cords over the hook of the spring scales hanging from the ceiling. The limb is made to hang straight by adjusting the tent-blocks on the supporting cords, the muslin hammock fits snugly and then the version is over corrected by shortening the two outer supporting cords and by rotating the limb in the splint and propping over with cotton. The weight of the limb is now noted (of course, being careful to have the support of the scales perpendicular) after which the bed is moved away from the point of suspension till the long sash-cord makes an angle of about twenty to thirty degrees with the perpendicular. The foot of the bed is raised six to ten inches, being careful to keep the distal extremity of the splint about six inches above the mattress. The difference between the weight of the limb as noted and the present reading of the scales is, of course, the amount of traction. This varies from five to twelve pounds, according to the weight of the individual. A long, flat, half-filled sand bag (two to six pounds) may be placed on the bare anterior surface of the thigh to add weight to the limb—thereby increasing the

pull—and to control the muscular spasm of first weeks.

No appliance is needed to support the upper fragment, "as the fracture is always sufficiently supported by the tension of the muscles when traction is applied." * * * "With every movement of the limb or body, the limb and splint swing as a whole between the ligaments of the hip joint and the suspension rope and so automatically adjusts itself that the seat of fracture is not disturbed by any reasonable excursions the patient may make over the bed in attending to his daily wants or conveniences."

Though not increasing the angle of suspension or the amount of pull as indicated by the scales, the longer the suspension cord, the more effective the pull. "This fact," says the author, "is not easy to explain unless it is that the wider range of swaying motion, with the angle of the cord much less, gives a teasing pull from side to side that is more effective than a steady straight-away pull that is much harder—much as the rocking, swaying pull of the obstetrical forceps will effect more than the dead-straight pull."

From the first the patient sits up in bed to eat, write, bathe and use the bed pan. The splint requires very little attention. The patient may complain of the heel if not properly padded or of pain at seat of fracture if the limb below the knee is too low or too high.

The chief point in treatment is "that muscular resistance * * * should be overcome gradually and that it is a wrong principle to endeavor to reduce or set the fracture under anesthesia," but rather to approximate the fragments by a constant pull paralyzing the muscles. This can be accomplished in a few days.

The splint may be used in many conditions of the thigh where rest, relaxation and comfort are needed as fracture of the patella, infection of the bones, phlebitis, hip disease and resection of this joint. In the author's nine cases of fracture of the hip, "none have

died and the majority resulted in good union, little shortness, if any, and no stiffness of the hip or knee and no bed sores."

After quoting cases, illustrated with skiagraphs, the author states that after more than twenty years experience he believes that no simple fracture of the thigh cannot be successfully treated by this splint, and if the treatment is carried out in detail the results should be perfect in nearly, if not all, cases.

(J. F. G.)

PERFORATIVE PERITONITIS.

By John B. Murphy, M.D., Chicago. *Surgery, Gynecology and Obstetrics*, June, 1908.

Peritoneal absorption depends on several factors. (1) Pressure of abdominal muscles. (2) Rhythmic, pump-like action of the diaphragm. (3) Peristaltic activity. (4) Vitality of the peritoneal endothelium. Factors hindering absorption: (1) Subperitoneal infiltration; (2) venous engorgement; (3) diminished peristalsis; (4) diminished respiration; (5) lowered abdominal temperature, as by the application of ice bag; (6) drying of the peritoneal endothelium, e. g., by exposure during an operation; (7) lowered intra-abdominal pressure, as after laparotomy; (8) certain positions of body which favor gravitation toward the pelvis, as the Fowler position.

Protection against infection: (1) Peritoneal fluid; (2) plastic powers of peritoneum.

Bacteriology: Colon bacillus, streptococcus, pneumococcus, B. pyocyaneus, gonococcus, the typhoid bacillus and the staphylococcus pyogenes aureus are the most important in order given. The colon bacillus is undoubtedly the most important. Death from colon bacillus occurs in the first few hours or not for several days. If death occurs in the first few hours it is due to toxæmia and is usually reported as death from shock; if after several days it is due to a general peritonitis with a cumulative toxæmia.

Death from the streptococcus is due to sepsis. The term free peritonitis should be used for the general diffuse variety and circumscribed for the encapsulated form, regardless of the size.

In perforative cases the first symptom is pain, which comes on suddenly, is intense and of paroxysmal character. It may be so severe that collapse is imminent. Chilly sensations or an actual rigor are not uncommon.

Primary reflex nausea and occasional emesis immediately follows the pain of perforation.

Tenderness is marked, at first localized at the seat of perforation, but as the inflammation advances becomes general. The abdominal muscles become rigidly contracted, with absolutely no respiratory movement.

The pulse is rapid, small, and has a peculiar hard wiry character in the early stages. As the toxæmia increases the pulse becomes softer, irregular and finally fails. The pulse is a more reliable guide than the temperature. The thighs are drawn up, the respiration very superficial and costal in character. The temperature is of little prognostic or even diagnostic value, except there is always elevation at some time, usually early. Nausea is an early and important diagnostic symptom, occurring shortly after the onset of pain; it disappears to return later, associated with distressing vomiting, finally only a gulp occurring every few minutes. The tongue is dry and tremulous, the teeth covered with sordes. The abdomen gradually becomes distended, tense and tympanitic, often obliterating the anterior liver dullness. There is a drawn, anxious expression, with sunken eyes, sharply defined nose, hollow temples and a cold, parched skin.

Treatment.—The patient should be placed in the Fowler position at his home the moment the diagnosis is made. He should be taken to the hospital in this position, carried so to the operating room, and operated upon with at least the shoulders well elevated. It is scarcely necessary to dwell on the import-