nothing abnormal. A diagnosis of acute appendicitis was made.

Operation (by Mr. Hirschfeld, under general anaesthesia).—An intussusception was present. The apex of the intussusception was in the transverse colon, and on reduction it was found to be the ileo-caecal valve. No tumour or other cause was discovered. The appendix was removed. Convalescence was satisfactory.

The pathological report stated that there was venous engorgement of the appendix.

One month after operation the patient was well, having had no more attacks of pain since. He has answered subsequent inquiries, and wrote in March, 1938, that he had been very well.

Summary

The rarity of cases of acute intussusception in the adult, and the aetiology of the condition, are discussed.

The history of three recent cases is given. In two of these the causative factor was a neoplasm.

I am indebted to Mr. H. S. Souttar and Mr. Alan Perry for permission to publish the notes of the three cases, which were under their care in the London Hospital.

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CONGENITAL DEFORMITIES OF LEGS

BY

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On December 1, 1936, a girl aged 16 was brought to me as she was said to have been "born without any legs." She came into my consulting-room walking on her hands, using the base of her trunk as a middle support. She was a most curious sight when I first saw her: one had the impression of a rather large dog coming into the room, an impression made stronger when she leaped from the floor to an ordinary chair and squatted on her haunches with a rather pleased smile at her trick. Her speed when "walking" was amazing; she could cross the room as fast as an ordinary adult, and when she wished to sit on a chair she leaped into it and sat like an ordinary human being. The change from the ambulatory position on the floor, where she looked like a domestic animal, to that on a chair, where she took on the appearance of an ordinary individual, was dramatic. She stood with most of her weight on her left lower limb, and the two curious teat-like projections from the right lower limb enabled her to balance herself on her two "legs" with the aid of one hand. She wore a large sock to cover the right stump, and a boot—much deformed—on the left foot.

On examining her more closely one found that through constantly walking on the palms of her hands with the wrists dorsiflexed she had developed a greatly thickened palmar skin, comparable in character to that of the sole of the foot and studded with "hoofs." Apart from the acquired thickening of the palmar skin and the congenital deformities of the legs the girl was normal. The "legs" themselves were very interesting, and are well shown in Fig. 1. The right one was about 6 inches long, as

measured from the great trochanter; it was a large fat stump ending in two teat-like projections, presumably abortive toes, and looked for all the world like a cow's udder. One could feel bones inside the left "leg," which was about a foot long, and had a femur, a tibia, and three inner toes; the fibula and two outer toes were missing, and the dimple over the tibia so characteristic of the con-

FIG. 1.

genitally absent fibula was present. X-ray photographs revealed that both hips were dislocated, and that there was an abortive femur with condyles in the right stump and an immature femur and tibia in the left stump.

The girl herself, content for many years, was now reaching womanhood, and wanted to be the same height as others and to walk like others. Was it possible? My first thought was to straighten the left knee and to put the left foot into full equinus in order to make the left lower limb as long as possible. Afterwards the limb would have been fitted into the socket of an artificial limb which had a knee-joint at the usual level. I have done this before in a similar unilateral case with success. I thought we might fit a tilting-table leg to the right stump. Her bodily development was good, and there was no doubt she would be able to use a tilting-table leg satisfactorily.

Those responsible for the girl were not in favour of an amputation of the right stump, as they were afraid that, if the attempt to make the girl walk failed, the operation might have ruined any return to her original method of progression. I wished for a further opinion, and sent her to my friend the late Dr. H. R. Moxon, at Queen Mary's Hospital, Roehampton, making use of the Ministry of Pensions scheme whereby civilians have the advantage of advice from expert military limb-fitting surgeons.

Dr. Moxon's Report on the Case

"The fitting of artificial limbs in this case, though presenting difficulties common to all such cases of deformity, nevertheless does not present insuperable difficulties—in fact, I think there is a reasonable chance of obtaining quite a successful result. This is enhanced by one very important asset—namely, the girl's obvious wish to be fitted and look like a normal girl in height and appearance, by which her willing co-operation is assured. Also youth and strength are on her side, and thus the physical and mental aspects are favourable.

"*Right Side.*—This should be fitted with a metal tilting-table leg made as light as possible, with the body weight taken accurately on the tuber ischii. The stump, however, is at present much too long, measuring about 6 inches. Shortening by at least 3 inches is necessary, the aim being to give a snugly fitting socket without too much prominence in front, which would be unsightly under the skirt and would at the same time make balancing more difficult and get in the way of the instrument on the left side.

"*Left Side.*—Operation is not recommended. It is suggested that an apparatus should be fitted by which her body weight is taken on the tuber and the foot is supported on a platform partly enclosed in an artificial knee with an artificial shin and foot below. Then it seems fairly certain that by means of a double knee-cap and various straps the knee and foot can be gradually pulled into position. This result would improve as time went on, and need not be a painful process in any way in a properly adjusted instrument.

"This being the general outline of the case, the stages recommended are as follows:

"1. Shortening of the Right Stump.—When this is ready for fitting, which should not be before three months from the date of operation, she should be sent as an in-patient to Roehampton, prepared to stay at least two months. This is very necessary, as she has never walked and has to be taught to do so and get her balance, etc., just like an infant. Regarding her present method of locomotion, this would not be interfered with by shortening the stump if she fails to manage with artificial limbs, as she would still have the buttock; and it is noted that when she gets about on the floor she takes the weight on the left leg and hands chiefly.

"2. On admission a start would be made with the left side in order to get the necessary height, the height of the tilting table being gauged therefrom and increased by graduated blocks. It will be noted that, in view of the double dislocation, the weight on each side will be taken on the tuber ischii and not on the axillae.

"In conclusion, I think that there is a very good chance of success in this case, difficult as it is, and that the girl will be able to walk in comfort with fairly normal gait.

"X-ray appearance (copied from x-ray report submitted).—The pelvis: Well developed, but of the android type. Hips: Congenital dislocation on both sides, and on the right side the head of the femur is separate from the shaft. The legs: On the right side the femur is very imperfectly developed, with a very short and thin diaphysis and the head developed separately from it; the parts below the knee-joint are all very rudimentary. The left shows a fairly well developed femur and tibia, but absent fibula."

I was rather surprised to see that Dr. Moxon suggested gradual straightening of the left limb. I felt that as the girl was to have an operation it would be better to straighten the left leg operatively, as it would be quicker and less tiresome for the patient. However, after discussing the matter we decided to do as the limb-fitting surgeon suggested. The limb-fitting was Dr. Moxon's work, and his arguments were as follows:

"It is not the intention to fit the girl's left leg into the socket of an ordinary artificial limb, as this could not be recommended as a practical procedure. Therefore, the preliminary straightening of the left leg for that purpose does not arise.

"The type of apparatus recommended for the left leg is in reality a combination of surgical instrument above, with the knee, shin, and foot of an artificial limb below. The principle of such an apparatus is illustrated on page 58 of '*Solvitur Ambulando*,' but each individual set-up must differ in detail according to the requirements of the particular case of deformity under consideration. In this case it is felt that an instrument on this principle can be fitted to the girl's left leg with reasonable prospect of success without any preliminary straightening operation, open or otherwise. Preservation of her present mode of progression is in my opinion of prime importance.

"When not wearing the legs, or if the fitting of them should unfortunately be unsuccessful, she can still get about as before, which she certainly would not be able to do again if the left leg were previously straightened by operation."

Accordingly, on June 15, 1937, I removed about four inches of femur from the right stump together with a large amount of skin and subcutaneous fat and the two teats,

using a posterior flap. The resulting stump was very satisfactory, being a much better shape and size for the fitting of a tilting-table leg (Fig. 2).

After three or four months she went to Roehampton, where she remained an in-patient for five months. The following is taken from a letter I received from Messrs. Hanger and Co., who supplied the patient's artificial legs:

"When Miss R. came to us, apart from a wheeled chair her only means of locomotion for seventeen years had been on her hands and haunches. It was found that the moment she was placed in an erect position on any form of temporary pros-

FIG. 2.

FIG. 3.

thesis, even a few inches from the ground, a sense of balance was entirely lacking and she became giddy. We gradually accustomed her to being off the ground at progressively increased heights, until eventually she was able to retain her balance when raised to her normal height of 5 ft. 1 in.

"For the deformity on the right side we provided her with a prosthesis of the normal type for an amputation involving disarticulation of the hip-joint, similar to that illustrated on pages 49 and 50 of our brochure '*Solvitur Ambulando*.'

"For the left leg a special appliance was devised, comprising a thigh socket and surgical boot rigidly mounted to a ball-bearing knee-joint (embodying an automatic knee-lock) connected to a light metal shin-piece with an articulated foot and toe-piece.

"In designing these prostheses light weight combined with ample strength and practical efficiency were the essentials required for a successful result. It was found, however, that when she was first fitted she had not the slightest idea of how to walk; but she proved a very apt pupil, and in a short time had learnt the movements required.

"From this time she made rapid progress, and when she left our hands was walking distances of half a mile with perfect confidence and without undue fatigue, using two walking-sticks. She can walk with one stick, but at present it is inadvisable that she should do so. We think, however, that when she has become quite accustomed to these prostheses she will find only one stick necessary."

When I saw the girl in May, 1938, she was able to walk quite well on the level with the aid of one stick. She climbed by herself up a short staircase with complete self-assurance. Fig. 3 shows the girl and her new legs. When fully dressed she is to all intents and purposes an ordinary individual. Her whole outlook is changed, and

she is now a self-reliant girl with a place in life instead of being a circus curiosity.

She has an electric chair for taking her from one building to another, but, having arrived, she can now walk like other people and take a normal part in the work of the day. In her own words she says (July 5, 1938): "I can nearly do everything now, and do not ache so."

Since sending this article for publication I have heard (November, 1938) from the girl's doctor that she is now progressing with increasing freedom and is beginning to learn to dance.

I am very grateful to many who have helped me to bring about this result: my own staff, that of the Ministry of Pensions, Messrs. Hanger and Co. (the artificial-limb makers), and one whom I mention by name, the late Dr. H. R. (George) Moxon, who unfortunately did not live to see such a happy result of his advice.

Clinical Memoranda

Carcinogenicity of the Tar-Creosote Mixture used by Fishermen

This tar-creosote mixture was submitted for investigation by Dr. C. C. McKenzie of Campbeltown, who suspected it of being responsible for cases of cancer of the lip in the local fishermen. The carcinogenicity of the mixture was tested by painting the skin of thirty stock mice, in the interscapular region, three times a week. After the second application epilation of the whole painted area occurred. A severe dermatitis, resulting in ulceration, followed, the ulcers penetrating so deeply that scars were produced.

Twenty-one mice survived for longer than three months. The first papilloma occurred after 106 days. In his pathological report Dr. L. Woodhouse Price stated: "This is a keratinizing squamous epithelial papilloma, showing very early malignant change." Eleven papillomata developed in these mice from the 106th to the 249th day. By this time all mice had either died or had to be killed because of the extensive ulceration. The papillomata developed on the edges of the ulcerations, except in one case, in which the papilloma occurred within the ulcerated area. In the sections of the more recently examined tumours cell-nest formation and a good deal of deep infiltration are to be seen. Their histology is that of well-differentiated squamous carcinoma; however, the panniculus carnosus does not appear to be infiltrated with the tumour, which therefore is termed a papilloma malignum. In mouse No. 599 the lung showed macroscopically a definite tumour, and histologically the structure of anaplastic new growth, probably a lung adenoma, 197 days after the start of painting. It is known that the application of tar to the skin of mice increases the number of lung adenomata, as compared with controls.

There is no doubt that this tar-creosote mixture, which comes in contact with the lips of the fishermen, is carcinogenic. This source of occupational cancer can and should be eliminated. It is necessary either to produce a suitable non-carcinogenic tar, possibly by distillation at lower temperature than at present, or to educate the fishermen to abandon the habit of putting the bone or wooden needle, threaded with tarred twine, between their lips while mending their nets.

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Reviews

GUIDANCE IN OBSTETRICS

Midwifery. By Ten Teachers. Under the direction of Clifford White, M.D., B.S., F.R.C.P., F.R.C.S., F.C.O.G. Edited by Sir Comyns Berkeley, Clifford White, and Frank Cook. Sixth edition. (Pp. 676; 262 figures, 9 plates. 18s. net.) London: Edward Arnold and Co. 1938.

The new edition of this textbook follows closely on the reprinted fifth edition published last year. Since then there have been extensive changes in the personnel of the "Ten Teachers" and minor changes in the book. The editor has reduced its size by discarding obsolete material contained in the previous edition. Further improvement is possible when two pages are devoted to each of such rarities as locked twins and pseudocyesis, and several pages contain an unconvincing attempt to differentiate between albuminuria of pregnancy and pre-eclampsia.

The illustrations throughout are excellent, and include four colour plates and five radiographs. One of these must be criticized for suggesting that dilatation of the renal tract is evidence of pyelitis of pregnancy. Students should have little difficulty in remembering the positions in face presentation, since the illustrations on page 304 rather suggest a Dictator extricating himself from a difficult situation. Those with more "left" tendencies will find solace in the clenched fist on page 327.

Cervical polypi are not included as a cause of bleeding in pregnancy; transfusion is not mentioned in treatment of severe cases of obstetrical shock, melaena neonatorum, or familial jaundice; nor is vomiting included in the list of danger signs during the later ante-natal period. The dosage of ergometrine advised for post-partum haemorrhage is small and its action is incorrectly stated to be slow. Many obstetricians will disagree with the statement that it is quite unnecessary to displace the foetal head during manual rotation from a posterior position. Omission of the preliminary step of disimpaction is a frequent cause of failure to accomplish the operation, and is the indirect cause of many difficult and dangerous face-to-pubis extractions. Conservative opinion will regret that a breech with extended legs in a primigravida—even in twin pregnancy—is now a "rational indication" for Caesarean section, and that this rule should not be broken unless the infant is premature. So much by way of criticism.

This book is a well-established favourite with students, and the new edition is certain to be as popular as its predecessors and perhaps even more helpful.

MODERN SURGERY

The Essentials of Modern Surgery. Edited by R. M. Handfield-Jones, M.S., F.R.C.S., and A. E. Porritt, M.A., M.Ch., F.R.C.S. (Pp. 1,126; illustrated. 30s.; postage 10d., abroad 2s. 3d.) Edinburgh: E. and S. Livingstone. 1938.

This is a single volume, the composite work of fifteen authors, six of whom, including the two editors, are on the staff of St. Mary's Hospital, while with one exception (Mr. Walter Mercer of Edinburgh, who writes on deformities) the others are also London surgeons. Its scope is comprehensive: chapters on physiotherapy and radiotherapy, venereal diseases, diseases of the skin, diseases of the female genital organs, the ear, and the affections of the nose and accessory sinuses are included in addition to those on general surgery, which for the most part is dealt with on a regional basis. The format is attractive, the text clear, and the print large and easily