SURGICAL DISEASES OF IMMIGRANTS

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"While the essential or fundamental nature (biologically speaking) of all men is the same, unity of species and multiplicity of races involve the liability of all men to common diseases, which will, at the most, vary as to accessory phenomena, but also allow the existence of diseases more or less peculiar to certain human groups."—(Quatrefages, "The Human Species"—quoted by Rosser, 1923.).

The Immigrant from far countries must bring with him to this country manifestations of disease which arise from racial differences and from tropical disease which may be common to many countries outside Europe. And yet it seems that the disease pattern seen in this country amongst them is not particularly remarkable, and from the paucity of the literature it seems that no one has considered it worthwhile putting on record their experiences of surgery amongst Immigrants. The Immigrant tends to perpetuate his previous mode of life as far as possible in this country, in his racial habits and his diet and accordingly some of the factors which foster disease continue to operate here.

The search for any particular disease pattern will be more rewarding in specialties other than surgery—in the field of general medicine, in public health, venereology and pathology. In surgery there is not much that is specific though there is a change of emphasis in incidence of certain diseases, many of which are conspicuous by their rarity or near absence. Others are made more serious by underlying blood deficiencies or endocrine deficiency, malnutrition, etc.

Indeed, it should be emphasised that the pattern of surgical disease is very similar in all the races, and that it is dangerous to look for differences where none exist. "If a Jamaican has the symptoms of Peptic Ulcer, it may well be that he *has* a Peptic Ulcer".

Tropical diseases of significance to the surgeon which may be seen in this country include:—

Alimentary System

Ankylostoma Duodenale:

Hookworm is extremely prevalent in the

West Indies, about 8% of Jamaicans having the parasite in the stools. The worm settles in the small intestine and feeds in the host blood producing secondary anaemia. In addition, its affinity for the duodenum is said to produce a duodenitis which may be responsible for producing the common symptoms of peptic ulceration. Indeed, it has been postulated that the ankylostoma could be a predisposing factor in producing duodenal ulcer with fibrosis, which is one of the commoner manifestations of peptic disease in the West Indies. Secondary hypochromic anaemia is such a constant finding, whether due to infestation by hook worm, malnutrition, or haemolytic disease, that it behoves any surgeon who undertakes operation on these people to check pre-operative haemoglobin levels.

Ascariasis:

The round worm *Ascaris lumbricoides* is not only responsible for producing a secondary anaemia, but may cause definite intestinal colic, abdominal pain and distension, mimicking a subacute intestinal condition, and complete intestinal obstruction from a bolus of round worms can occur.

Amoebiasis:

Amoebic infestation is of world-wide distribution, though more especially in hot countries, and, of course, should be thought of in any case in an Immigrant, or other resident from abroad seen by the surgeon with chronic diarrhoea or exacerbation of abdominal pain, with frequent blood-stained stools. The complication of amoebiasis may produce urgent abdominal symptoms. These may be listed:—

Intestinal obstruction;

Liver abscess;

Perforation of an amoebic ulcer.

These occur most commonly in the upper rectum or the caecum. The appearance and rapid enlargement of an amoebic granuloma or amoeboma may be felt to demand urgent surgery. It should be stressed that a pre-operative diagnosis of amoebiasis should be

obtained by stool examination or sigmoidoscopy, if possible, so that treatment to cover the operation can be initiated. Operation on the bowel in amoebic dysentery carries a very high mortality—up to 50%. Treatment may be with emetine for 5-10 days, which may rapidly control the urgent symptoms and as supportive treatment a non-absorbable sulphonamide—phthalyl sulphathiazole, or possibly one of the tetracycline drugs.

The colon in amoebiasis is usually extremely unhealthy, being oedematous and often much thickened, and resection of bowel in this condition is fraught with danger.

Malaria:

Malaria produces few lesions which require surgical treatment but confusion of a malarial attack with appendicitis can occur, right-sided abdominal pain and a high fever being present. Enlargement of the spleen and tenderness over the liver may be found. It is also common knowledge amongst surgeons in the tropics that post-operative pyrexia, otherwise unaccounted for, can be assumed to be due to malaria, and often responds to anti-malarial treatment. The spleen may be found to be clinically enlarged and may give rise to low grade abdominal pain and to more acute symptoms when it undergoes torsion. Splenectomy is indicated and presents no undue difficulties.

Lymphogranuloma Venereum:

This remarkable disease is not strictly a tropical disease as it is found in various parts of Europe from Scandinavia to the South of France, as well as being endemic in the U.S.A. It was commonly found in the West Indies where the writer made a special study of it. With the steady influx of immigrants from the Caribbean since 1955, it might be expected to have been seen in its later manifestations, although from enquiries in the centres of immigration it seems that it is not prevalent. Only 9 new cases were notified in 1962.

It is a venereal disease caused by a virus of the L. G. V.—psittacosis group and three varieties of the established disease may be seen.

The acute inguinal phase, seen almost exclusively in the male. A small primary sore on the penis is followed by the appearance of the typical "climatic buboes." The inguinal glands are large, rubbery and tender and bilaterally affected. They may proceed to suppuration or may resolve with a thickened rubbery mass of glands.

The Genital Variety. In the male this may follow the acute phase, or may occur as the result of primary implantation of the virus within the urethra. Lymph stasis, urethral stricture and peri-urethral abscess formation lead to gross elephantiasis and multiple fistula formation. In the female, oedema, ulceration, elephantiasis and destruction of tissue occurs and is associated with ano-rectal lesions, producing the genito-ano-rectal syndrome, or Esthiomène of French authors.

The Ano-Rectal Variety. This phase occurs predominantly in women and the mode of entry of the virus is much less well defined. There is no history of a primary or acute phase and the first intimation of disease is the onset of diarrhoea and abdominal pain, with the passage of mucous, blood and pus per rectum. A severe procto-sigmoiditis occurs which leads to desquamation of the mucous membrane and subsequent fibrosis, "the pre-stricture phase" (Spiesman, Levy and Brotman, 1937). Finally, stricturing supervenes.

These cases may present to the surgeon, with proctitis only, or proctitis with a still elastic stricture, or with an established fibrous stricture which it is not possible to dilate. The granulating finger has a characteristic feel to the examining finger resembling morocco leather, and sigmoidoscopy shows a very florid, easily bleeding surface with pus in great quantities.

The rectal stricture varies greatly in density from a mere elastic gripping of the finger to a dense fibrosis which will not admit the smallest dilator. Radiology gives valuable evidence on the length and location of the stricture and it should be pointed out that stricturing can occur not only in the rectum but above it, in any part of the left colon. (Figs. 1 and 2).

Diagnosis: In addition to the well established Frei intradermal test, the Complement Fixation Test has certain advantages being more convenient and being quantitative to some extent.

The clinical features of ano-rectal and intestinal L.G.V. have been mentioned—abdominal pain with diarrhoea and passage of purulent and blood-stained stools, but in the stricture phase constipation and obstructive symptoms supervene, and this is of some significance in the Negro who is blessed with a remarkably regular and copious evacuation.

The disease can be cured in the proctitis phase with the tetracycline antibiotics. Whether these are virucidal is not established and it seems that their beneficial effect is really on

FIG. 1.—Dense stricture of pelvic colon.

the secondary infection that occurs, rather than on the virus itself.

The stricture phase can only be treated by operative means, either by dilation or by excision of the stricture. Dilation is effective in the comparatively few cases of soft annular, or very short tubular stricture. The strictures "split" alarmingly easily and profuse haemorrhage is very commonly produced.

Over-dilatation can be dangerous and leads to rapid increase in fibrosis. It should never be done blindly but always under direct vision through a proctoscope (Annamunthodo, 1961 & 1962.).

The surgical treatment of rectal stricture cannot be dealt with fully here but it presents a fascinating challenge to the surgeon. Excision of the stricture and various types of colorectal anastomosis, and pull-through operations have been practised. (Miles, 1957; Annamunthodo, 1961 & 1962), and in some cases an abdomino-perineal operation is necessary.

FIG. 2.—Short stricture in rectum. Stricture in descending colon. Narrowing in transverse colon.

FIG. 3.—Condyloma and elephantiasis of vulva.

Reference should be made to the gynaecological lesions which this disease may cause and which might well be seen amongst immigrants who have harboured the disease for many years before entering this country. Recto-vaginal fistula is associated with the rectal disease and this is always situated within 2 in. of the fourchette. Smaller superficial ulcers occur on the genitalia and later, destructive lesions of the labia and the urethra occur often associated with stenosis and fibrosis of the vagina. Gross elephantiasis of the vulva with large condylomata is often seen in Negroes (Fig. 3) but its association with L.G.V. is not always clear. (Stewart, 1959).

Other Abdominal Surgical Conditions

Peptic Ulceration

There is no freedom conferred by race from this disease although its incidence and severity is less in Asiatic races. In the Negro it can be remarkably severe, and fibrosis and scarring of the duodenum leads to a high incidence of pyloric stenosis and to a large proportion of "irremoveable" ulcers, though perforation is slightly less common. Vagotomy and drainage operations, although attractive for this type of case, do lead to disturbances of bowel function and flatulent distension, which are more marked in races who exist on a primarily carbohydrate diet with its "flatogenic" tendency.

Cholecystitis with pigment stone formation occurs commonly, and often in young people as a result of haemolytic disease in childhood. The large bowel is blessedly free from *ulcerative colitis* which is rarely seen in non-Europeans. Symptoms suggestive of this disease might well be more likely due to bacillary or amoebic dysentery or to lymphogranuloma venereum. *Diverticulitis* is also extremely rare.

The large bowel is subject to anatomical variations in non-European races. The caecum is often in the primitive high position and completely peritonealized so that volvulus of the right side of the colon can occur. The sigmoid colon is very much elongated and abnormally dilated with a narrow-based mesentery, (an acquired abnormality due to feeding habits rather than an anatomical one), and this leads to *volvulus* occurring in a much wider age group than in Europeans.

Intussusception occurs frequently and it is not confined to children. The mobile, loosely attached bowel easily intussuscepts as a result of any irritative factor within its lumen, such

as intestinal worms, bezoars formed from food residues, and intraluminal growths.

The Acute Abdomen

Apart from the acute conditions, caused by specifically tropical diseases which might be seen in this country amongst the immigrants there is a difference in the frequency and importance of those conditions common to all races which lead to an acute abdominal crisis. Difficulties in diagnosis and indecision as to whether to operate occur when the surgeon is unaware of these differences of emphasis. Only very rarely are the specific tropical diseases likely to produce acute abdominal symptoms, but some of them should be borne in mind when considering a diagnosis. The acute complications of amoebiasis have been mentioned, and the acute malarial attack giving pain over the liver and spleen, *Ascariasis* may cause urgent gripping abdominal pain and acute obstruction can occur from the mass of worms. The perforation of a typhoid ulcer is a dramatic episode in the course of the disease and leads to a rapid deterioration of the patient's condition. Urgent laparotomy is required with closure of the perforation and drainage. Acute cholecystitis can supervene during typhoid fever and perforation of the gall bladder is a rare complication. It is interesting to note that this can occur in children and a high incidence of it was reported from China by Liu and Chu (1949).

The acute crises of sickle-cell anaemia may cause confusion occurring as they do in young people. They consist of thrombotic crises caused by infarction of abdominal organs usually the spleen, or more rarely, to mesenteric vessel obstruction. The patient shows a severe constitutional disturbance. He may complain of generalized pain with its greatest intensity round the umbilicus. Headache often accompanies the attack. The abdomen is tender in all parts and is markedly distended, this being due to small bowel distension, and the presence of considerable quantities of fluid. The fluid is characteristically bile-stained and gives a clue to the diagnosis when laparotomy is performed erroneously. (It will be gathered that the author has himself been guilty of this on several occasions.) It is particularly important that laparotomy should be avoided as the risks of anaesthesia are considerable if anoxia is allowed to occur, and in addition there is risk of renal failure from kidneys stuffed full of red blood cells.

Appendicitis

Acute appendicitis is undoubtedly far less common in non-European races although with progressive "urbanization" of populations, and an increase in protein in the diet, the disease is becoming more common. Unfortunately, it has not been possible to collect any figures on the incidence of appendicitis amongst immigrants during the big phase of immigration of the last decade. From an experience amongst a mainly negro population, it can be said that acute appendicitis differs somewhat from the accepted picture seen in Europeans. There appears to be a slower onset of symptoms, the duration of symptoms being several days before pain brings the patient to the doctor for advice. Many authors have observed that vomiting is much more rarely present than in Europeans although there is marked nausea and general "low feelings". The temperature is often raised to 100-101°. The tenderness is difficult to localize, often higher in the abdomen than McBurney's Point, possibly due to the generally higher position of the caecum. It seems to run a more benign course than we are accustomed to see, with abscess formation rather than perforation, being the final phase. In women, appendicitis as a cause for acute abdominal pain is distinctly rare compared with the far commoner cause of pelvic inflammatory disease.

When considering the diagnosis of the acute abdomen in patients from tropical countries, acute conditions affecting the *spleen* should not be overlooked. The spleen is liable to be enlarged as a result of haemolytic diseases, malaria, and many other conditions. In addition to acute infarction as mentioned above under sickle-cell disease, it is liable to splenitis, with adhesion formation, torsion, and rupture as a result of minor trauma.

Bezoar formation, though rare, must be mentioned in any discussion of tropical diseases. The phytobezoars (food bolus) occurs amongst impulsive eaters of hard-skinned, pippy, or fibrous hairy fruit such as the persimmon, or the hairy mango. Acute simple obstruction of the stomach or of the ileum occurs and it is useful to remember that the pulpy mass can often be felt and be indented by the fingers.

Mention must be made of the incidence of pathological conditions of the pelvis in women of African descent. Intestinal obstruction from adhesions and bands following pelvic inflammatory disease is common. Ovarian cysts and

tumours are also extremely common and tend to produce a mass of adhesions culminating in the "frozen pelvis". The remarkable incidence of fibroids is well known and these reach enormous proportions. Pelvic surgery is fraught with difficulties and dangers owing to the adhesions and potential damage to the ureters.

Abdominal hernia

This is very prevalent amongst Africans and negroes, though apparently less common in Asiatic races. Herniae tend to assume enormous proportions probably as a result of neglect and delay in seeking treatment, and gross sliding herniae are frequently found. The diagnosis of inguino-scrotal swellings can be difficult owing to the many pathological conditions, that affect this area—hydrocele is a very common condition, probably as a result of low-grade infection of structures of the cord. Inflammation of the cord leads to chronic thickening, and obliteration of the lymphatic drainage to elephantiasis of the scrotum.

The *umbilical hernia* is a distinctive entity in the African. In Nigeria, 91% of children in a survey, aged one month to five years showed an umbilical hernia (Jelliffe, 1952). The etiology of this is not clear but it is apparently due to the prevalence of the "skin-type" umbilicus where the cord stops short of the abdominal wall, being joined there by a tubular projection of peritoneum-lined integument. The herniae regress to a large extent as the child grows but many persist forming very large protrusions, particularly in women. The herniae are usually symptomless and strangulation very rare because of the size of the ring. Operative treatment in children and young people is not encouraged owing to the tendency to regression and the fact that the large ring demands more than mere excision of the sac.

Genito-Urinary Diseases

The genito-urinary diseases likely to be seen in immigrants are those due to long standing infection, either non-specific or venereal. Urethritis and subsequent stricture of the urethra make up a large proportion of these cases. The strictures are often formidable and usually multiple and lead to extravasation and multiple sinus formation in the scrotum and perineum. Dilatation is an extremely difficult procedure and there is a tendency to marked general reaction following it, with rigors and circulatory collapse. Excision of the stricture, using the technique described by

FIG. 4.—Elephantiasis of scrotum.

Denis Browne, after preliminary suprapubic cystotomy, is rewarding, though very time-consuming. Weston has drawn attention to the incidence of squamous carcinoma of the bladder, associated with long standing stricture, (24% of cases of carcinoma of the bladder seen in Jamaica) (Weston 1961, 1962). He remarked that the same pattern of carcinoma has also been noted in Africa. Squamous carcinoma of the bladder has also been attributed to schistosomiasis. There is undoubtedly a high incidence of carcinoma of the bladder in many areas of schistosomiasis infection, particularly in Egypt and the Nile Valley, which has the highest incidence of carcinoma of bladder in the world.

Benign papilloma of the bladder is conspicuous by its rarity amongst non-European races and perhaps this lends support to the theory that there is a group of extrinsic causative factors associated with contact with "civilization" and urban life. Urinary schistosomiasis (bilharzia), is also responsible for many other lesions of the lower urinary tract, and as the disease is widespread in Africa, some parts of the West Indies, and throughout the Far East, it is likely to be seen at some stage in immigrants though it should be noted that it is almost unknown in India. Cystitis and haematuria are the earliest signs but the later stages which are more likely to be seen result in contraction and calcification of the bladder, and strictures of the ureter.

Elephantiasis of the scrotum, penis and perin-

FIG. 5.—Operative result.

FIG. 6.—Sinus formation in perineum.

eum is a chronic condition commonly seen in Africans, and although in Asia it is caused by specific infection by Filariasis (*Wuchereria bancrofti*), in other parts of the world no specific organism is found. *Lymphogranuloma venereum*, however, is possibly one causative factor. The condition is confined to the skin and subcutaneous tissues and enormous swellings ensue. Excision of the elephantoid tissue

FIG. 7.—Juxta-articular nodes on elbows.

FIG. 8.—Yaws.

FIG. 9.—Yaws with sabre tibia.

in an extensive “monobloc” operation with skin grafting is a comparatively easy and straightforward procedure, and it is gratifying to find how completely normal are the genitalia embedded deep within the thickened tissues. (Figs. 4, 5, and 6).

The myriad manifestations of “Tropical” diseases that might be encountered in this country, with close on two million immigrants, cannot be discussed fully in the space of this article. Some of those may, however, be briefly commented upon.

FIG. 10.—Dermatofibrosarcoma protuberans on chest wall between the breasts.

FIG. 12.—Keloid following burns.

Ulcers and Infective Conditions of the Lower Leg

The Tropical Ulcer: Although rather loosely defined this is a definite entity. It is a rounded ulcer starting at the site of a prick, or a bite, on the lower third of the leg, with a deep necrotic evil-smelling base. Scrapings from the ulcer contain *Treponema Vincenti*. Extensive scarring of the leg occurs from successive ulceration. It can be effectively cured by penicillin or tetracyclines but surgical excision, or at least debridement, accelerates the rate of cure.

It can present a diagnostic problem as it may be confused with thrombotic ulceration, yaws, cutaneous leishmaniasis, syphilis and many other causes of ulceration.

Yaws may produce confusing ulcerated nodules in its secondary phase, and is responsible for numerous other lesions which can cause confusion to the surgeon. The juxta-articular nodes seen at the knees and elbows resemble bursae. (Fig. 7). The gummatous periostitis and osteitis, seen particularly in the tibia, is very characteristic as is the outward appearance of "sabre tibia" (Figs. 8 and 9).

FIG. 11.—Melanoma of heel.

Varicose veins are a rarity amongst Africans and Indians. The cause of this gratifying state of affairs is not clear but again it would seem that this condition is part of the price of "civilization", the wearing of tight clothes and of shoes, and sitting on high hard chairs instead of squatting or lying on the ground.

Skin tumours present in many bizarre ways amongst dark-skinned races. Amongst benign tumours seen in this country, which caused some diagnostic confusion, were the following:—Dermato-fibro sarcoma protuberans, a large proliferative growth seen over the sternum and thought to be a secondary nodule (Fig. 10). The other was a large cylindroma—the so-called "Turban Tumour", affecting the whole scalp.

Neurofibroma: Multiple neurofibromatosis is a familial disease and is seen frequently in the West Indies. Dumb-bell tumours of the

FIG. 13.—Fibro-sarcoma of thigh in a 15-year-old boy.

spine were seen, usually in association with the other multiple manifestations of the disease.

Melanoma is common in pigmented races and is particularly seen over the heel and sole of the foot. It is possible that it is not quite so malignant as when seen in white people. (Fig. 11).

Keloid formation is a peculiar characteristic of the Negro (Fig. 12). It tends to occur at any site where the skin has been damaged, particularly in surgical incisions, which in the Negro, should as far as possible be made along Lange's lines with avoidance of tension. It is a manifestation of the "fibro-plastic diathesis" of the Negro, a somewhat loose concept postulated by Rosser (1923) who suggested that this ethnic group had a tendency to "mesoblastic hyperplasia" in response to injury or infection, a local reaction, which compensated for a poor systemic defence. He quoted the tendency to keloid formation, uterine fibroids, rectal stricturing, urethral stricture and elephantiasis. To this may be added soft tissue fibro-sarcoma (Fig. 13), a common tumour, and perhaps neurofibromatosis.

Surgery on the Immigrant

The tropical surgeon is well aware of the potential hazards that accompany surgery in the tropics on people who are so very often only on the border-line of fitness for surgery. Although immigrants are usually in the better category of social status and are not likely to be suffering from the effects of malnutrition, or harbouring the tropical diseases in an acute form, some of the conditions that lead to hazardous surgery may well be perpetuated even after prolonged sojourn in the United Kingdom. Secondary anaemia from various causes, malnutrition, the haemoglobinopathies, worm infestation, are prevalent. The blood viscosity is low, as are the serum proteins with a reversal of the albumin—globulin ratio, and there is often hypotassaemia. According to Keating, the blood volume in Africans is significantly lower than in Europeans. (5 litres as against 5.71 when matched for height, weight and age). (Keating, 1958).

The reaction to stress is also much modified. There is a deep fear of surgery and a marked reluctance to sign consent for an operation. The reaction to anaesthesia is very variable and unpredictable. Gross fluctuations in blood pressure are liable to occur during abdominal operations, Stirling and Keating (1958), found that the size of the adrenal glands in Jamaicans was significantly less than that in Europeans, average weight in male Jamaicans being 8.78 g. as opposed to 13.82 g. in the European male, the reduction in weight being at the expense of the cortical tissue. In addition the 24-hour secretion of 17 keto-steroids is significantly lower than in Europeans, which indicates that the Negro obtains his steroid requirements from sources other than the adrenals, and it would appear that there is a relative deficiency of steroids in conditions of stress. In this there is a resemblance to patients with Addison's disease who, before the cortisone era were considered unfit for surgery. It follows that hydrocortisone may be required, in larger doses than those normally used, during and particularly immediately after any major operation.

On the credit side, when discussing the risks of operation, the remarkably low incidence of post-operative pulmonary complications should be mentioned. Pulmonary embolism occurred only twice in twenty-thousand operations at University College Hospital of the West Indies. (Keating and Myles, 1957) and deep venous thrombosis of the lower limb was almost unknown.

Conclusion

In conclusion, I think there is some danger of medically "over-segregating" the Immigrant who may tend to be treated as a being apart, albeit with some really "interesting" disease. The disease pattern from the surgical point of view is not outstandingly different from that seen every day amongst "the native population" of the United Kingdom but it may have served a useful purpose to point out some of the surgically significant tropical diseases, and to dwell briefly on the differing pattern of every day surgical conditions when seen amongst the various races who make up our steadily increasing immigrant population.

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