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REMARKS

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By G. M. HUMPHRY, M.D.
Professor of Surgery in the University

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* Read at a meeting of the Cambridge and Hun

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REMARKS

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REPAIR OF WOUNDS AND FRACTURES IN AGED PERSONS.[1]

By G. M. HUMPHRY, M.D., F.R.S.,

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It will have been observed by others, as well as by myself, that ulcers heal quickly in old persons; and that the processes of granulation and cicatrisation proceed in them, on the whole, with even greater rapidity than they do at earlier periods of life. We see this more especially in the leg, because ulcers are much more frequent in this region than in other parts; but the observation is not confined to them. I have noticed this reparative activity in the aged under many circumstances and in various parts of the body; and, my own experience indicating that the same holds good with regard to wounds and fractures, and that the commonly received opinion to the contrary on this head is erroneous, I ventured, in a note recently printed in the Journal of this Association, to ask for information from others, that I might ascertain whether their experience accorded with my own.

My attention was first directed to the subject by the case of a man aged 88, who consulted me many years ago respecting a warty growth, with some ulceration, on the lower lip, which annoyed him, and which he wished to have removed. I excised a large piece of the lip by the usual V incision, and the wound healed as rapidly and firmly as any of the kind I ever saw. About the same time, I operated for femoral hernia on a feeble woman aged 75, and the wound was soundly healed in three days. Several similar cases have come under my own notice, and some have been sent in answer to my inquiry; not so many as I could have wished, but enough to establish the fact of the quick union of wounds in old people.

The statement must be qualified in a manner which savours rather of the paradoxical; namely, that wounds in old people heal quickly, provided they do not slough. That is to say, the apparently opposite tendencies exist at this time of life—namely, the tendency to slough and the tendency to heal quickly. Such, for instance, is the observation of oculists, whose testimony on the subject I have asked. They find that the cornea sometimes sloughs after the operation for cataract in old people; but that, when it does not slough, the wound heals quite as quickly as, or more quickly than, at an earlier time of life. So in other operations. The old person may sink, or the wound may slough or ulcerate; but, if these eventualities are escaped, a quick healing may be expected.

Certainly this would not have been anticipated, We should not

[1] Read at a meeting of the Cambridge and Huntingdon Branch.

have thought that, when the nutritive forces are generally failing, when strength and weight are diminishing, when repair is each year less and less able to keep pace with wear, as evinced, among other things, by the fact that exhaustion is more quickly induced and less quickly recovered from; when the brain is shrinking, and memory and other mental powers are lowering, and when the circulation is becoming weaker,—that, under these circumstances, the nutritive or reparative processes concerned in breach-closing, in the healing of wounds and ulcers, should manifest an increase of energy, at any rate, of rapidity, in carrying on their work. I do not know well how to explain it; but this exceptional phenomenon of nutrition is not peculiar to old age. It may be observed in some other lowered conditions. The wounds in patients exhausted by large losses of blood usually heal quickly, as they also do after operations for cancer, and in many other debilitated conditions. I do not mean persons of naturally strumous temperament, but persons who have been weakened by illness or in other ways. So do, commonly, the gaps caused by carbuncles, and bed-sores; and very remarkable is the quick healing of the stump left by the separation of the parts in senile gangrene—that is to say, this evidence of vital energy is manifested in the part next above that which was unable to keep alive at all; and, after fracture of the spine, we sometimes see quick sloughing and quick healing in closely adjacent parts. An exception must be made of certain impaired conditions of the nervous system in which wounds and sores are sometimes very troublesome.

The remarks I have made with regard to the repair in wounds and ulcers in old persons hold good also with regard to fractures. This is sufficiently proved by the cases mentioned below; and in one of these, given by Dr. Walford, it may be remarked that the limb, in which the fractured tibia and fibula united in three weeks, was partially paralysed and nearly useless, the knee being contracted; and in Mr. Copley's case, the broken tibia in a most enfeebled helpless woman of 68 was pretty firmly united in two weeks.

Professor Gross, in his *System of Surgery*, observes that age is no barrier to union, and mentions the case of a lady aged 100, in whom union of a fractured humerus took place in the usual time; and that of a woman aged 93, in whom a fracture of the upper third of the thigh was united in seven weeks.

The contrary view, however, is prevalent. In Holmes's *System of Surgery* it is stated that, "in old age, the period is greatly protracted in proportion to the want of vigour of the individual." Chelius remarks that in advanced age the bone heals with difficulty. In the *International Encyclopædia of Surgery*, a doubtful opinion is given; and the prevailing impression respecting the time required is probably to be attributed not so much to observation of the fact as to an *a priori* feeling that it is likely to be so; for we know how often that which is probable is assumed to be that which is real.

Moreover, the circumstance that fractures of the neck of the thigh-bone, which may be regarded as the old person's fracture, commonly does not unite at all by bone, the broken ends in many cases remaining quite separate, seems to give support to the view. It is well known, however, that this failure depends, not upon the age of the patient, or on any peculiarity in the structure of the bone, or upon any changes that take place in it during the later periods of life, though those changes are such as to cause rarefaction of its cancelli and greater liability to fracture, but upon other causes. Such causes, more particularly, are the separation of the broken surfaces, which commonly occurs; the buried position of the inner fragment in the cavity of the acetabulum, which prevents any overlapping of the fragments and any throwing out of uniting matter around it; as well as the comparative absence, and, when the fibrous covering of the neck is torn through

all round, the complete absence, of tissue in which that material can be produced; and also the bathing of the fractured surfaces by the synovial fluid. That these conditions, which are found to be more or less prejudicial to bony union of fractures into other joints, and not senility, are the real causes of failure in the case of the neck of the thigh-bone, is proved by the fact, that union by bone will take at this part of the skeleton as well as elsewhere, if the fractured surfaces be fixed in apposition, either by any kind of impaction or by well adjusted appliances; and that this will occur in the aged has been often proved, and as is well shown by the specimen I show you of firm bony union, in a gentleman, aged 81, who broke the neck of his thigh-bone a year before death. The treatment was very carefully conducted by Mr. Wherry, who was near by at the time of the accident, and who, recognising the nature of the case, took every precaution to prevent further displacement of the fractured surfaces; in seven weeks, union had taken place so firmly, that the patient could raise the limb from the bed by the action of the muscles of the hip. The breakage was close to the head of the bone, as is shown by a line of fibrous tissue joining the fractured surfaces in the hinder part; whereas, in front, the union by bone is so complete, that it is difficult at first sight to determine the line of fracture.

Notes of several cases have been sent me, in which union of broken neck of the thigh-bone in old persons was believed to have taken place, and in a short space of time; but, as the condition of the parts has not been verified by examination, and as in such cases it is almost impossible, without ocular inspection of the part, to determine whether bony union has actually taken place, I have thought it better to omit them from the series given below.

In the case of fractures, as in the case of wounds, a certain amount of nutritive vigour is necessary to bear, and turn to good effect, the vascular and other changes in the tissues associated with the work of repair; and, unless that exist, destruction by liquefaction or absorption of tissues may take place, instead of the condition requisite for healing. In the bones, indeed, a certain amount of absorption is the regular attendant upon repair. By it, the surfaces in the proximity of a fracture are roughened, and rendered porous to admit the new uniting material—the soft callus-medium—to grow into and form one with them, just as the surfaces of a brick are rough, that the mortar may run into and set in, and adhere to them, and form a bond. Sometimes we find that, in old and very feeble people, the one requisite for reunion after fracture—the work of absorption or destruction of the broken ends—takes place in excess; whereas the other requisite—the work of forming the new uniting material—is deficient. Accordingly, the ends of the bones become porous and worm-eaten, and little or no callus is produced. That has been the case in this oblique fracture of the humerus, which occurred in a feeble man, of 86, while he was pulling himself upstairs by the handrail. He was afterwards extremely restless, so that no retentive means could be effectually applied; one of the broken ends made its way through the skin, and he died in three weeks. The bone is light, and is worm-eaten near the fracture, and there is only a little crumbling osseous deposit upon it. The same condition is seen in each of these two thigh-bones, one of which was taken from an aged subject in the dissecting-room, and the other bears all the marks of senility. I do not know the history in either case, but in both there are absence of new material and evidence of too free removal of the old.

In the contrasting features, therefore, of liability to utter failure of repair and demolition of the injured part on the one hand, and in the of quick repair on the other, the bones resemble the soft parts; and now I trust that the question for the solution of which I have asked your

assistance has now been sufficiently answered. We have thus established the fact that the repair of wounds and of fractures takes place in the old persons as quickly as in the middle-aged; and we ought to hear no more of the disqualification for reunion which has been attributed to old age. That this is no unimportant matter from a practical point of view, is sufficiently shown by the case mentioned to us by Mr. Hodson, of Bishop Stortford, in which a fracture of the thigh-bone in an old woman was allowed to go untreated, because the medical men thought that at that time of life union of a broken bone was not to be expected.

In conclusion, I have to thank the members who have been good enough to forward the cases from which the following notes have been taken; and I may remark that it is only by the collection of cases in this way these and many other questions can be answered. The investigation by this method, for which our Association affords such unprecedented opportunities, has the double advantage of bringing a heavy battery of information to bear upon any one point where information is required, and further of greatly benefiting those who communicate the information. There is no reading at all to compare with that of reading ourselves, our own experiences and our own thoughts upon them. These were the feelings which influenced me, when I ventured at the Cambridge meeting four years ago to suggest that some measure of the energies of the Association should be turned in this direction. I have never taken any part in the political movements which occupy the attention of some of the more active members being of opinion that more service might be rendered to the Association, to its individual members, and to the science and practice of medicine, by organising a plan for the collection and utilisation of the vast streams of experience which are daily allowed to flow away into the great abyss of waste.

The following are notes of cases of wounds in elderly persons.

1. Woman, aged 85, strangulated hernia; wound healed in four days; torn open again by old lady's fingers, healed again soundly in three weeks; bed-sore on sacrum six days after operation (Mr. MAY, in *British Medical Journal*, May 31st).

2. Woman, aged 75, hernia; healed in four days (Mr. MARCH, *British Medical Journal*, May 31st).

3. Man, aged 91, large wound of scalp; periosteum stripped from bone; much bleeding; on eighth day himself again and going out (Mr. MOLONEY, *British Medical Journal*, May 24th).

4. Woman, aged 86, hernia healed in ten days (Dr. COUSINS, *British Medical Journal*, June 7th); never saw more satisfactory result.

5. Woman, aged 85, hernia; healed by first intention (Mr. THOMSON, *British Medical Journal*, June 7th).

6. Woman, aged 79, hernia; healed by first intention (Mr. THOMSON, *British Medical Journal*, June 7th).

7. Woman, aged 76, femoral hernia; bowel gangrenous; artificial anus; quite healed up in three weeks (Dr. SMITH, of Newport, Essex).

8. Woman, aged 75, very feeble; femoral hernia; healed in three days (G. M. H.).

9. Woman, aged 80, femoral hernia; healed in a week (a Member of the Association).

10. Woman, aged 78, mamma removed for soft cancer; severe hæmorrhage same night; immediate union (Mr. HULKE).

11. Male, aged 88, warty growth of lip, removed; healed as quickly and firmly as in young person (G. M. H.)

12. Woman, aged 91, angry sore over middle of tibia from a blow;

healed quickly and thoroughly under simple treatment (Mr. HEMMING, of Kimbolton).

13. Man, aged 93, scalp wound three inches long down to the bone, and contused wound on back of head from fall upon the grate when asleep. The former healed by first intention, the latter in a few days (Dr. SMITH, of Newport, Essex).

Notes of cases of fracture in elderly persons:

1. Woman, aged 81, fractured thigh below middle, and dislocated shoulder; in six weeks could walk round table with help of stick; in five months walked four miles (Mr. GROOM, of Wisbeach, 1884).

2. Woman, aged 80, compound fracture at ankle; healed and united in seven weeks (Mr. GROOM).

3. Man, aged 80, fractured humerus; united in five weeks (Mr. GROOM).

4. Man, aged 75, fractured femur; united in seven weeks (Mr. HODSON, of Bishop Stortford).

5. Man, aged 71, fractured tibia and fibula; walking on crutches in a month (Dr. WALFORD, of Hampstead).

6. Woman, aged 80, fractured radius; united in three weeks (Dr. WALFORD).

7. Woman, aged 74, fracture in hemiplegic and contracted leg; united in three weeks (Dr. WALFORD).

8. Man, aged 78, fracture of patella by muscular action; interval between edges, one inch; soon united apparently by bone; in a few months walked two miles without any instrumental or other aid, except a walking stick (Mr. SUTTON, Gorden Street, W.C.).

9. Man, aged 80, fractured patella, fragments about three-quarters of an inch apart; very restless; united quickly, firmly; soon able to walk about (G. M. H.).

10. Man, aged 83, fractured ulna by a blow, much bruising, no treatment for four days; united within a month (Mr. BRIDGER, of Cottenham).

11. Man, aged 92, fractured humerus and injured ribs; in bed three days; bony union in a month (Mr. BRIDGER, of Cottenham).

12. Woman, aged 74, fractured thigh; firm bony union in eight weeks (Mr. FRASER, of Leyland).

13. Woman, aged 82½, well marked Colles' fracture; firm union in twenty-five days (Mr. F. HARVEY, Plymouth Hospital).

14. Woman, aged 72, fractured lower end of humerus; union in four weeks (Mr. STEPHENS, of Doddington).

15. Woman, aged 68, with paralysis agitans, carried from chair to bed, etc.; very helpless; limbs bent; tibia broken by foot being struck against ground, did well for a week, then became weaker and sank after two weeks; union taking place well (Mr. COPLEY, Wisbech).

16. Man, aged 93, fracture in upper third of femur; union in six weeks (Dr. HARRISON, Huddersfield).

17. Woman, aged 75, fracture in upper third of femur; union in seven weeks (Dr. HARRISON, Huddersfield).

18. Man, aged 81, fracture in neck of thigh-bone, intra-capsular; bony union in seven weeks (G. M. H.).