CASE
OF
FRACTURED CRANIUM,

WHERE THE DURA AND PIA MATER WERE LACERATED, AND A
GREAT QUANTITY OF THE CEREBRUM PROTRUDED, WHICH
TERMINATED FAVOURABLY.

By P. T. CREAGH, Esq.

SURGEON OF THE ROYAL NAVY.

COMMUNICATED

By H. L. THOMAS, Esq.

Read Jan. 29, 1811.

*His Majesty's Ship Hind, off the Island of
Milo, Archipelago, Nov. 20, 1807.*

THOMAS RIGGS, a seaman, belonging to his Majesty's ship Seahorse, was received on board of this ship, at nine o'clock this morning, out of a Turkish prize, captured by the Seahorse, some days ago, off Candia, afflicted with the following wounds, which he received about ten o'clock last night from some of the foreign prisoners, who had endeavoured to assassinate our men, and retake their ship.

The two ossa parietalia were considerably injured, particularly the left, and the following fractures were traced in different directions.

1st. A large fracture was found running from about the middle and superior portion of the left parietal bone, backwards and downwards, towards the lambdoidal suture.

2d. A second fracture extended from near the origin of the latter fracture, directly across the sagittal suture, and embracing about two inches and a quarter of the right parietal bone; a fissure extended farther on into the same bone.

3d. Another line of fracture began one inch and a quarter from the origin of the latter, backwards, crossing the sagittal suture, and almost communicating with the second fracture in the right parietal bone, forming nearly an obtuse angle.

4th. A fourth fracture extended from the origin of the first, running forwards and downwards, towards the left side.

A considerable portion of the right parietal bone was forced up about its center by an oblique blow, made by a cutting weapon, beginning from below upwards. This injury, from the depth and direction of the probe, appeared to extend to the inner table of the cranium.

5th. Another fracture extended from a little above the middle of the left orbit, obliquely upwards and backwards, towards the left side. This fracture was made by a cutting weapon, in a perpendicular direction.

At the origin of the first fracture, as I have called it by way of distinction, the cranium was shattered into several pieces; one splinter penetrated the dura and pia mater, and dipped deep into the substance of the brain itself, which made way afterwards for a vast deal of that substance to protrude, and to ulcerate.

After shaving the head, I examined minutely the nature and degree of the injury received; and tracing the fractures to their origin, I removed such portions as were loose, and two that were compressing the brain, and I elevated others on a level with the uninjured cranium. All the clotted blood being removed, the membranes dressed, and adhesive plasters applied to prevent the scalp from retracting, he was let blood, took a saline cathartic draught, and was put to bed. He remained quiet all the day, but became a little restless towards evening, and in consequence took a draught, with gr. xxiv. of Tinct. Opii.

November 21.—He is apparently better this morning, but he was occasionally disturbed with

rigors in the night; in other respects he passed it quietly; has had one evacuation.

Injiciatur enem. commun. h. s.

P. M. He spent the day very quietly; was much inclined to doze; has had only two loose stools since he was wounded; pulse quicker; heat increased. I removed the dressings. From the parts whence the bones were taken away, there is a good discharge from the surface, and the substance of the brain protrudes.

Habeat haust. salin. in actu effervescentiæ tertiâ quâque horâ.

R. Extract. colocynth. comp. gr. i. Calomel. gr. iv. ft. pilul. N°. vi. horâ somni sumendæ.

22d.—He passed a quiet night, and had one evacuation this morning; pulse 78; he is very sensible to all that is done about him; discharge as before.

23d.—Spent a restless night; complained frequently of his head, and of a severe pain shooting across his forehead. The pulse is full, and harder than before.

Emittantur sanguinis $\bar{z}$ xij Repet. haust. salin. & pil. colocynth. circa meridiem.

P. M. He experienced great relief from the bleeding; passed the remainder of the day very quietly; has had no evacuation since yesterday.

24th.—Passed a tolerably quiet night; had one copious loose stool this morning; there is a good discharge from the wounds; the pain of the head and eyebrows continues; skin perspirable; has an inclination to doze.

P. M. Pain continues severe.

Repet. pil. colocynth. superbibendo infus. sennæ tartar. ℥iij.

25th.—At 9 A. M. pain of the head and eyebrows is increased; there is a copious discharge from the wounds; had three evacuations early in the morning; the paralysis of the arm continues, and a partial one of the same side, and of the lower extremity has taken place; great propensity to sleep, with an astonishing degree of stupidity and wildness of countenance. The cerebrum protrudes through the ruptured membranes; the eyes are somewhat fixed, and the pupils rather dilated. A portion of the left parietal bone, passing backwards and downwards, having risen above the level of the sound cranium, and in other parts being apparently depressed, I was led to suppose this to be the cause of the present distressing symptoms. Accordingly I enlarged the wound, and, with the

head-saw I began to remove a longitudinal portion. After some time, I discovered that the entire fractured piece might easily be taken away from its loose attachment; I therefore raised the scalp, and brought away a large piece of bone, under which and upon the dura mater, lay a thick layer of coagulated blood, firmly adhering to this membrane. After removing this coagulated blood, I applied a thin intervening dressing, and brought the scalp as near as possible to its neighbouring skin.

Seven P. M. He is much better. The pulse is increased in fulness and frequency.

Emitt. sanguinis ℥ xij. *R* *Haust. salin. cui adde tinct. opii gutt. gr. xxiv. horâ somni sumend.*

26th.—He passed a quiet night. The dura mater, laid bare yesterday, exhibits a healthy aspect. The cerebrum protrudes; there is a good discharge from the wounds; pulse 74, and irregular; tongue moist; speaks incoherently at times; there is a slight inclination to nausea; takes no medicine, but has a nourishing diet.

27th.—There is a good discharge from the sores; a slight pain of the head remains; pulse 77, and irregular; eyes somewhat dilated, but sensible to the approach of light.

P. M. Appears worse this evening: has had se-

veral attacks of muscular distortion of the face, there is a profuse discharge from the wounds.

Habeat pulv. ipecac. comp. gr. x. tertiis horis.

28th.—He took two doses of the powders, and brought up the third; appears more tranquil this morning; pulse 77; a good granulation begins to spring up from the dura mater; nourishing diet continued; mutton broth, &c.

Repet. horâ somni pilul. colocynth. ut antea.

29th.—He appears cheerful, and is perfectly sensible; discharge as before; the substance of the brain continues to protrude; the aperient pills have not yet operated.

P. M. Pain of head continues.

November 30th.—The appearance of the sores and of the discharge is good, and granulations are rising fast; his aspect is, nevertheless, very unfavourable; he is much inclined to doze; he will not take any nourishment, and appears lethargic; a little Port wine was allowed him.

P. M. Every symptom of approaching dissolution seems to advance rapidly; has not taken any nourishment since morning, excepting a very small quantity of wine with water.

Applicet. Emp. Cantharid. nuchæ colli.

December 1st.—He spent a bad night; had three different attacks of convulsive tremors about three o'clock this morning; is much inclined to doze, and is at times in a comatose state; the breathing is very low and interrupted; the convulsive tremors have returned; the paralytic affection of the side and lower extremity has considerably increased; pulse low and frequent; and he is no way affected by the approach of a strong light. From these symptoms, I was sure that more of the cranium required to be taken away. Accordingly I removed a portion of the fourth fracture in the left parietal bone, nearly of a triangular shape, which admitted of another bone being raised. The removal of this bone made room for the free exit of serous fluid, and coagulated blood that lay underneath the bone, upon the dura mater; and the removal of this bone also exposed entirely the ruptured membranes, with the cerebrum protruding through, and a portion of the longitudinal sinus. After removing the extraneous fluid, he was simply dressed, and put to bed.

2d.—He passed a quiet night, but slept very little; skin hot; pulse 77; about a tea-spoonful of the brain protruded.

P. M. No change.

Repet. horâ somni haustus salinus cum opio.

3d.—His sleep has been more friendly during the night, and every symptom is more favourable; slight ulceration on the surface of the cerebrum has taken place, with considerable motion of that viscus, similar to the pulsation of the arteries; the paralysis of the side is seemingly less; the discharge lying on the surface of the brain was removed, by introducing a little clean sponge with a pair of forceps, and lint afterwards; takes no medicine.

6 P. M. Slept for about three hours during the day; appetite improves, and he had one evacuation; pulse natural; skin moist.

Repet. haust. salin. cum opio.

4th.—There is no particular change this morning.

5th.—The appearance of the sores continues favourable, and no bad symptom has intervened. The pulsating motion of the brain is very slight in the morning, but increases towards evening. Takes mutton broth, and sago and tea.

6th.—He appears very low and languid; has had no evacuation these two days past; appetite is worse; pulse 77; a little wine is mixed with his sago.

Repet. pilul. colocynth. C. ut antea.

P. M. Had one loose stool.

7th.—He passed a quiet night ; seems very low ; there is a good discharge from the external wounds, and the cerebrum protrudes as usual ; feels no pain of the head. There is a profuse discharge from the wounded os frontis, and the bone is denuded of its pericranium ; the fracture is sufficiently wide to allow of a free exit of any fluid that may collect within ; the dura mater can be felt with the probe ; the fractures crossing the sagittal suture are also discharging healthy pus ; the fractured portion of the right parietal bone can be easily moved up and down ; but as it in no way compresses the brain, I did not think it right to remove it. Dressings as before ; takes as much of the decoction of bark as will lie upon his stomach ; has an egg every morning.

8th.—He has been very uneasy all night and this morning ; looks wild and melancholy ; pulse natural ; skin cool ; the paralysis of the side has almost left him, and the lower extremity feels better ; the arm continues without any sensation or muscular motion ; bark continued as before.

Repet. pilulæ catharticæ.

9th.—Passed a quiet night ; had two loose stools. The healthy discharges continue ; appetite improves ; pulse natural ; the febrile symptoms which

threatened to rise last night, have disappeared. The cerebrum, as seen through the ruptured membranes, is of a bright red colour, and healthy granulations are shooting up from all parts of the dura mater. Mutton broth, and a little mutton, for dinner.

10th.—The aspect of the sores is very favourable, excepting the ruptured membranes of the brain, which appear dark and sloughy. The pulsating motion of the brain increases towards evening.

All the functions are natural; he has recovered the use of his side, and almost of the lower extremity. Bark is given freely.

11th.—The ulcerating process of the cerebrum has increased; the other parts remain as they were: dressed twice a day.

12th.—The ulcerating process has dipped deeper into the substance of the brain, and the increased discharge is removed by a little sponge and dry lint, and afterwards by spreading a little dry lint over the surface, to remain there for the night, and absorb whatever fluid may be secreted. The appetite is very keen, skin perspirable, belly rather costive; rich nourishing diet is given him often, but in small quantity.

P. M. The cavity in the cerebrum, which is

very conspicuous in the morning, fills up considerably towards evening, although no perceptible velocity takes place in the pulse.

13th.—That part of the dura and pia mater which is seen through the ruptured membranes, has contracted a very firm adhesion to the cranium; the cerebrum is of a bright red, and has a glandular appearance. Repet. pilul. colocynth. ut antea.

14th.—The discharge is very copious from the fifth fracture, and granulations are rapidly embracing the edges of the ruptured membranes, which it was necessary to check, to allow a free exit for the discharge from the cerebrum beneath. This discharge, however, continues to lessen, and the glandular appearance is more distinct, with considerable irregularity of surface. Has had two evacuations since morning, feels no pain, pulse 73, appetite is very good; has mutton and fowl broth for dinner, one egg and a basin of tea for breakfast. As he expressed a great desire for wine, I indulged him with a wine glass full at noon.

15th.—Appearance of the cerebrum as yesterday; the cavity, which is very conspicuous in the morning, lessens very perceptibly towards evening. There is a very good discharge from the fractures; the bark decoction is continued.

16th.—After removing the dressing early this

morning, a quantity of serous discharge escaped from the cerebrum very little discoloured. All functions natural; appetite very keen; he feels no uneasiness whatever: the pulsating motion of the brain does not correspond with the pulse at the wrist.

17th.—There is very little discharge from the cerebrum, and this is almost serous. Arrived at Malta, and were put under quarantine.

18th.—He is very cheerful; the discharge from the cerebrum is very small in quantity, and of a serous nature; the wounded os frontis discharges freely.

19th.—Discharge from the cerebrum as before; a little lint was introduced to absorb it; he passed a good night.

4 P. M. I removed the dressings once more; and as the membranes have adhered very firmly by granulations, I thought best to suffer them to remain so, particularly as the discharge from the cerebrum was very small in quantity in the morning; the discharge from the other sores is very favourable.

Sent my patient to the Naval Hospital at Malta.

I need not observe, that the strictest regularity of general regimen was most rigidly adhered to,

and every possible precaution taken to exclude the admission of the atmospheric air. A great deal must, however, have come in contact with the surface of the brain daily.

General warmth was attended to from the beginning, pledgets of fine tow being applied over the dressings, and flannel and linen night-caps over all. Care was taken to cause regular evacuations to take place, keeping the body at rest, and abstaining from every kind of medicine and nourishment that could excite the slightest sensation of nausea, as I observed that this always increased the pulsating motion of the brain. I trusted chiefly to nourishing diet, repeated as often as prudence would admit.

Here ends the relation of the general symptoms and treatment of this patient's case, while he was under my care. While I remained in harbour, I visited him daily; he continued to recover strength and appetite; the sores healed kindly; no further discharge took place from the cerebrum, the ruptured membranes having remained united from the 19th. Gentle exercise was recommended by Mr. Allen, the Surgeon to the Naval Hospital, and a bottle of porter daily, which was the only alteration he made in the plan of treatment pursued by me. After the sores had healed, and the paralytic affection had left him, he was invalided and sent to England.

I cannot take on myself to say the quantity of brain that protruded and ulcerated ; but owing to the length of time that the brain was protruding, and the increase of the pulsating motion of the cerebrum as the vacuum increased, together with the appearance of the hollow space when most conspicuous, I am persuaded the loss could not be less than a large egg full and a half, and I am inclined to believe it much more.

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No. 9, *Panton Square*,
9 Dec. 1810.