GUMMA OF THE FRONTAL REGION

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Cerebral Gumma, solitary or multiple have now become almost a clinical curiosity. In addition it is very seldom that oto-laryngologists are required to diagnose and treat a case of cerebral gummata but one may be confronted with such a case where the patient comes with a swelling in the region of the forehead. Such was the case that is being reported here.

A cerebral gumma which is sufficiently large to give rise to raised intra cranial pressure is very rare and is usually found as a sub-cortical mass in one cerebral hemisphere, (Lord Brain, 1962).

Gumma of the brain is the rarest of the nervous manifestations of the syphilis and more important, it is one of the rarest types of cerebral tumours (Grinker and Sahs, 1966).

An isolated gumma is an uncommon form of intra cranial new growth. Cushing had only 12 instances among his 2000 patients with varified intra cranial neoplasm (Baker, 1965). It constitutes 0.5% of all the intra cranial tumours (Baker, 1965). Incidence of gumma in Mount Sinai Hospital from 1915–1942 was 0.4% (Nonne Max, 1953). It is because of such rarity of this lesion, that it was decided to publish this case.

A female 35 years of age complained of:—

(a) Headache in the region of the forehead, chiefly on the right side, duration being 2 years and 6 months.

(b) Gradual loss of vision in the right eye – 2 years.

(c) Gradually increasing swelling in the region of right side of the forehead – 2 years.

(d) Vomitting off and on – 2 years.

(e) Six months prior to her admission in this hospital she developed certain mental changes for which she was treated by a Psychiatrist. She was given electroconvulsive therapy, pentothal narcosis and a large number of tranquilisers. This did not yield any result and then somehow she attended the E. N. T. Clinic of this hospital. She was admitted with the provisional diagnosis of meningioma frontal lobe.

In her past history only significant point was history of repeated abortions. At present she had 6 children alive and healthy. Her husband is alive and well.

On general examination, she was fairly well built. There was no palpable lymphadenopathy including epitrochlears. The colour of the skin and mucous membrane were natural. There was no sign of cyanosis or jaundice. No clubbing or spooning of finger nails.

Her pulse was 78/mt. regular, volume and tension good. Respiration 22/mt. regular; Temperature 98.6°F. Blood Pressure 140/80 mm of Hg. Liver and spleen not palpable.

Heart and Lungs were normal clinically. The neurological examination also did not reveal any deficit except that she seemed sluggish in her mental

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reactions. She also lacked interest in her surroundings and among her fellow patients.

On local examination – there was a swelling in the region of right side of the forehead, 3 cms. above the medial end of the eyebrow, (Fig. 1).

It was spherical in shape and 2 cm. in its vertical as well as in its transverse diameters. It was fixed and bony hard in consistency. The margins of the swelling were fairly well demarcated. Skin over its surface was of natural colour, texture and free. There was tenderness on deep pressure. It was dull on percussion. No pulsations were felt and no bruit was heard on auscultation. On transillumination it was opaque.

Her haemoglobin was 11 gms. %

Total R.B.C. Count 3.5 million.

Total and Differential W.B.C. Count was 9000/cu mm.

with Poly	65%
Lympho	33%
Mono	2%

Her blood sedimentation rate was 60 mm. (W.G.)

Blood Sugar (Fasting) 85 mg. %.

Blood Urea – 30 mg.

Urine examination showed nothing abnormal.

The skiagram of the chest was normal and did not show any evidence of aneurysmal dilatation of the aortic arch. Her electro-cardiographic tracings were within normal limits.

Her blood serology done for syphilis was strongly positive (+ + +).

It was decided also to get her C.S.F. examined biochemically as well as for W.R. The report was as follows:

1. C.S.F. Pressure raised, 180 mm. of C.S.F. otherwise on naked eye examination appeared normal.

2. | | |
|---|---|
| Proteins | – 60 mg.% |
| Chlorides | – 740 mg.% |
| Sugar | – 60 mg.% |

Cells 4 lymphocytes per cubic millimeter.

W.R. (C.S.F.) was positive (++) Colloidal gold curve showed a paretic curve. It read as follows:

0 0 0 0 0 0 0 0 0 0

5 5 4 3 2 1 1 0 0 0

and skiagram of the skull (right lateral view) showed evidence of discontinuity of the inner table of the right frontal bone, (Fig. 2), with signs of increased bone density. Coronal suture diastatis was present. The radiologist's diagnosis was :—

(a) meningioma frontal region.

(b) Hyperostosis frontalis interna.

He advised angiogram. The angiogram of the case could not be done because of some unavoidable reasons.

Funduscopic examination showed signs of marked papilloe-oedema in the right eye. The arteries were narrowed. Veins markedly congested. Exudate present. Macular region dull. Left eye also showed early signs of papilloe-oedema. Perimetric examination showed narrowing of the visual fields specially temporal.

At the conclusion of above investigations and results, it was decided tentatively to label it as a case of gumma of the cerebral cortex (frontal lobe), and in consultation with Venereologist we agreed to give her the benefit of anti-syphilitic treatment.

Hence she was given potassium iodide orally in dosage of gr. V three times a day and gradually increased to gr. XX three times a day. Simultaneously bismuth in dosage of 0.2 gms. intramuscularly once a week, was also started and continued for 8 weeks.

The response to the therapy was very encouraging. After 3 weeks of the above therapy, the swelling over the forehead became appreciably less and in about 5 weeks disappeared completely, (Fig 3). She did not complain of headache and vomitting any more. She became more alert mentally and her vision in the right eye also started improving. In two months she became completely symptom free. At the end of two months she was given a full course of penicillin in the form of penicillin aluminium monostearate (P.A.M.). Total dose given was 30 million units.

At the conclusion of the therapy her W.R. in C.S.F. became negative although blood W.R. was still positive.

Vision Right Eye was 6/60 and left eye 6/12. There were signs of optic atrophy in the right eye.

She has now been followed up to two years and is symptom free.

Gummas of the brain may be solitary or multiple. In a study of localization of 48 cerebral gummas by Sheps and Simon (1943), central convolutions was the site of prediliction in 18 cases, only 3 were located in the region of the frontal lobe. It originates from the meninges and encroaches upon the brain from the surface. When present over the vertex they sometimes erode the inner table of the skull as was in the case reported above. Here in addition it had eroded the outer table and caused a swelling in the forehead.

The matrix of the gumma is the connective tissue of the meninges and blood vessels, hence these are situated superficially. Gummas of the brain cause symptoms similar to those of any other cerebral tumour. A choked disc is often present (Alpers, 1939).

Most patients show mental symptoms. The frequent abnormality is an impairment of memory. Patient may present schizophrenic picture (Gross, Stein. Myerson, 1942).

Some have visual hallucinations while others show signs of organic dementia. These often produce convulsive seizures.

Focal symptoms depend on the area compressed or involved and are akin to any other space occupying lesion with the difference that these are situated near the surface.

Diagnosis of the case may present considerable difficulty. Wasserman reaction is negative in 25% of cases and W.R. in C.S.F. is positive in only 45% of cases.

The cell count, globulin content and colloidal gold reaction usually reveal some abnormality but entirely negative C.S.F. have also been observed.

Pressure may be normal or increased. Cells are increased between 20 – 100/cu. mm. These are chiefly mono-nuclear. In the case reported above C.S.F. cell count was only 4/cu. mm. and were lymphocytes. Protein content was raised between 0.05 – 0.15% with increase of globulin. Lang's gold test yields either a paretic i.e. 5 5 4 2 2 1 0 0 0 0 or a leutic curve i.e. 1 3 5 5 4 2 1 0 0 0

Diagnosis is from history of infection, other stigmatas present and + W.R. (Blood and C.S.F.)

Erosion of calvarium must be differentiated from meningiomas.

Although Gumma of brain is very rare, however both intra cranial neoplasm and syphilitic infections are

Fig. 1

Clinical photograph showing a swelling on the forehead on right side

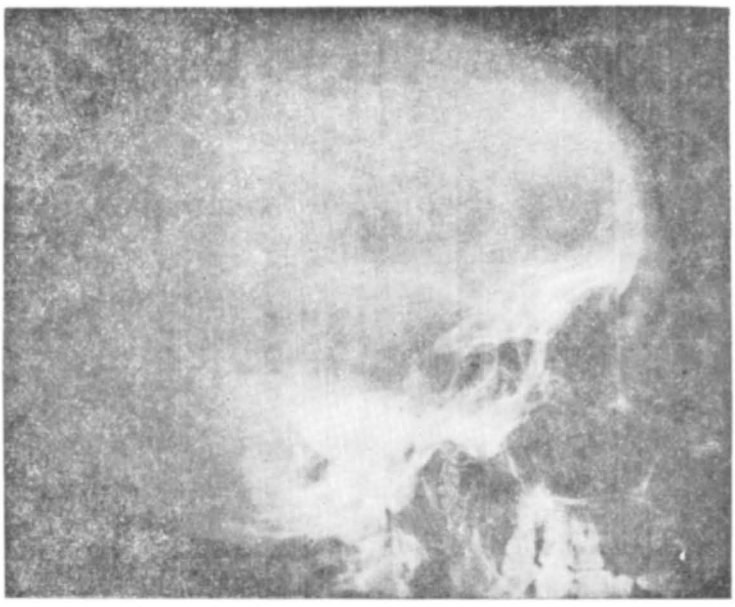

Fig. 2

Skiagram of the skull (right lateral view) showing erosion of inner table of right frontal bone

Fig. 3

Clinical photograph after anti syphillitic treatment. Shows complete disapperance of the swelling

common and may be present in the same individual. A positive W.R., therefore, must not be interpreted as indicating that, a space occupying lesion within the skull is necessarily or even probably a gumma.

Moreover in brain tumours false positive W.R. may be found in blood and C.S.F.

Inspite of the fact that the cumulative experiences of nearly all observers indicate that cerebral gummas are quite refractory to the anti-luetic drugs, a thorough trial is advised even to day. Nonne as long ago as 1913 urged that anti-luetic treatments be abandoned and surgery employed if no response occurred within 3 weeks.

Additional experiences since then have confirmed the view.

Summary :

A gumma of the frontal region is reported. A brief review about its incidence, sign, symptoms, diagnosis and treatment is discussed.

REFERENCES

1. Alpers, B. J.: Gumma of the Brain, Amer. J. Syphilis. 23 : 233, 1939.
2. Baker, A. B.: Clinical Neurology 2nd Edition Vol. I 1965, p. 550.
3. Baker, A. B.: Clinical Neurology 2nd Edition Vol. II 1965, p. 953.
4. Gross, S.W., Steig, A. and Myerson, P.G.: Surgical treatmenr of Gummas of the Brain, Amer. J. Surg. 58 : 79, 1942.
5. Lord, R.: Brain Diseases of the Nervous System 6th Edition 1962, p. 365.
6. Nonne, Max: Syphilis of the nervous system, J. B. Lippineot Co., Philadelphia 1913.
7. Roy, R. Grinker and Sahs. A. L.: Neurology 6th Edition 1966, p. 1090.
8. Sheps, J. G. and Simon J. L.: Solitary cerebral gumma J. Neuropath. & Exper. Neurol. 2 : 353, 1943.