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SECOND SCIENTIFIC MEETING
of the
SURGICAL RESEARCH SOCIETY
of
AUSTRALASIA.

Surgery Department,
University of Melbourne.

May 27th,
1963.

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PROGRAMME :

9.15 a.m. INTRODUCTION AND NOTICES.

9.30 a.m. PAPERS.

'The study of left atrial pressure during cardio-
plegia induced by profound hypothermia.'

- J. B. Johnston

'Radiological aspects of renal ptosis.'

- G. F. Murnaghan

'Correlation of repeated blood volume determina-
tions in a circulation of constant volume.'

- T. S. Reeve

10.30 a.m. TEA

11.00 a.m.

- 11.00 a.m. PAPERS.
- 'Changes in exteriorised duodenal mucosa.'
- F. O. Stephens 3.2
- 'Quantitative venomotor responses in the
lower limb.'
- J. Ludbrook 3.4
- 'The monitoring of haemodialysis by a
rapid method of blood urea estimation.'
- J. Nayman
- 'Weight loss in surgical patients.'
- V. C. Marshall.
- 'Electrolyte secretion from the stomach.' 3.4
- G. W. Milton
- 1.00 p.m. BUFFET LUNCH at Brennan Hall, St. Vincent's
Hospital.
- 2.00 p.m. PAPERS
- 'Brachial Plexus damage due to Nitrogen
Mustard.'
- T. B. Cartmill 7.0
- 'Some further observations on the activity
of the thyroid gland during surgical
operations.'
- J. G. Brockis
- 'Saprophytic septicaemia as a sequel to
ventriculo-atrial shunt with the Spitz-
holter tube.'
- R. C. W. Lowe

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3.20 p.m. TEA
3.40 p.m.

3.45 p.m. ANNUAL GENERAL MEETING

7.00 p.m. INFORMAL DINNER AT UNION HOUSE

ABSTRACTS OF PAPERS

'The study of left atrial pressure during cardioplegia induced by profound hypothermia.' . . . J. B. Johnston.

When cardioplegia develops during profound hypothermia induced by extracorporeal circulation, blood continues to accumulate in the left atrium from drainage of the bronchial veins. The heart is no longer able to expel this blood, and, in these circumstances, to avoid the development of high pressures in the left side of the heart during open heart surgery, the left atrium or left ventricle is drained.

When profound hypothermia is induced with a pump oxygenator without opening the chest as a means of providing suitable conditions for cerebral surgery, it is not possible to decompress the left side of the heart. It would seem, therefore, that dangerous pressures might develop at this site which could result in permanent damage to the heart and lungs.

In order to study this, the left atrial pressure during cardioplegia induced by the above technique was measured directly by means of a catheter inserted through the atrial septum into the left atrium. Varying conditions of flow, with and without controlled ventilation were used to produce changes in the left atrial pressure.

The findings will be reported.

'Radiological aspects of renal ptosis.'

. . . G. F. Murnaghan.

A radiological study of the position and size of the kidneys in 100 patients in the erect and supine postures is reported as a preliminary to the evaluation of any association between renal ptosis and renal ischaemia or pyelonephritis.

Marked differences in renal mobility on the two sides in the different sexes are demonstrated and discussed in relation to age, liver mobility, renal rotation and renal disease.

'Correlation of repeated blood volume determinations in a circulation of constant volume.'

. . . T. S. Reeve.

Whereas repeated blood volume determinations using Cr^{51} labelled erythrocytes may be made with a high order of accuracy in man and in the dog: the sheep fails to conform. On occasions it appears as if isotope is lost within the sheep.

An isolated extracorporeal circulation primed with sheep blood of a constant volume was used as a model on which to make repeated blood volumes by the Cr^{51} method. Good correlation between volumes was found in most cases. However there have been several results which have varied from the standard response, and these still require explanation.

'Changes in exteriorised duodenal mucosa.'

. . . F. O. Stephens.

Extensive studies have been made of the reaction of trauma and environmental changes of gastric mucous membrane, but very little is known of the changes which occur in duodenal mucosa under similar conditions. In this study changes were observed in duodenal mucosa after it had been exteriorised onto the abdominal wall and the effects of covering the exteriorised mucosa with skin flaps after several months exposure were also recorded.

macroscopically the explant remained pink and moist throughout the duration of the experiment, and always retained its ability to make peristaltic movements in response to stimulation. It did shrink a little in surface area and the surface became gradually smooth and uniform in appearance. Histological changes in the explanted mucosa occurred quite rapidly. The villi became shortened and had completely disappeared after two weeks. The mucous membrane underwent degenerative changes similar to those in explanted gastric mucosa. After two months the mucous membrane was composed of cystic glands lined by regular columnar cells, and was indistinguishable from gastric mucous membrane two months after exteriorization.

Covering the explanted mucosa with skin flaps resulted in a rapid recovery of the normal macroscopic and microscopic features of duodenal mucous membrane.

'Quantitative venomotor responses in the lower limb.'

. . . J. Ludbrook.

In recent years considerable work has been done to elucidate qualitative venomotor responses, using human upper-limb techniques. A technique has been devised to quantitate these responses in the lower limb in man. The findings are :

- (a) There are large volume shifts of blood in the lower limb with change in posture.
- (b) The greater proportion of these volume changes occur in muscle.
- (c) While quantitatively small intrinsic venomotor responses can be demonstrated in the foot (skin), none has been found in the calf (muscle).

'The monitoring of haemodialysis by a rapid method of blood urea estimation.'

. . . J. Nayman.

'Weight loss in surgical patients.'

. . . V. C. Marshall.

'Electrolyte secretion from the stomach.'

. . . G. W. Milton.

'Brachial Plexus damage due to Nitrogen Mustard.'

. . . T. B. Cartmill.

'Some further observations on the activity of the thyroid gland during surgical operations.' . . . J. G. Brockis.

Observations previously reported have shown that the thyroid gland secretes an increased amount of hormone into the blood during surgical operations. This has been thought to be due to increased activity of the thyroid stimulating hormone of the pituitary. Experimental results have often been expressed in terms of a conversion index, that is the ratio of the serum iodide to the serum protein bound hormone. The observations to be presented suggest that the intake of iodide by the gland is not paralleled in these circumstances by the output of hormone. This raises questions on the factors controlling iodide uptake by the thyroid. The effect of Thiopentone as an anaesthetic agent will be demonstrated.

'Saprophytic septicaemia as a sequel to ventriculo-atrial shunt with the Spitz-Holter tube.' . . . R. C. W. Lowe.

In a four month period from March to June, 1961, seven out of twelve patients treated for hydrocephalus by the insertion of a Spitz-Holter tube and valve developed septicaemia due to an unusual saprophytic-achromobacter. The results of investigations of this outbreak of infection are presented for discussion.