Adrenal gland encircling renal artery - a rare variation

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Introduction

The adrenal gland is situated adjacent to the superior pole of the kidney. We present a rare previously unreported variation, where the left adrenal gland was found encircling the accessory renal artery.

Case Report

A 29 year old female came forward as a donor for a live donor renal transplantation. Pre-operative imaging showed dual renal arteries arising from the aorta on both sides and an open left donor nephrectomy was undertaken. On dissection of the renal hilum, the upper of the two renal arteries was found to be traversing through the left adrenal with the adrenal tissue encircling the artery (Figure 1).

Figure 1. Image showing the upper accessory renal artery encircled by the adrenal gland.

The adrenal gland was split open to complete the dissection and to obtain a good length of the artery.

Discussion

The adrenal glands are situated in the upper medial side of the kidneys separated by a thin fascia. The adrenal gland consists of the cortex and medulla. The medulla develops from neural crest cells whilst the cortex develops from the surrounding mesenchyme. Reported variations include; aplasia, hypoplasia, ectopia where the adrenal gland is situated at an abnormal position [1], and accessory adrenals (in the peri-adrenal fat, coeliac plexus, along gonadal vessels and in the epididymis). The abnormality described in our case probably occurs during development by cortical mesenchymal tissues encircling the artery.

Conclusion

An adrenal gland encircling the renal artery is rare. This kind of variation has not been reported previously to our knowledge. In the operative experience of the authors this variation was not observed in over six hundred previous donor nephrectomies.

References

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Key Points:

- It is important for the surgeons to be aware of the possibility of the adrenal gland encircling accessory renal arteries to avoid damage to them and their branches during donor nephrectomy and other renal surgeries.