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CASE REPORT

ARTERIAL VARIATIONS OF HUMAN SUPRARENAL GLAND- A CASE REPORT

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ABSTRACT

Knowledge of anomalous arteries to the suprarenal gland (SRG) is significant for surgeons and intervention radiologists. These variations cannot be ignored. During routine dissection in male cadaver, following variations were noted.

On the right side, Superior suprarenal artery (SSR) originated from inferior phrenic artery (IPA) which was direct branch from celiac trunk (CT). This inferior phrenic artery gives branch to left supra renal gland, it also gives branches to diaphragm (accessory inferior phrenic artery). Inferior suprarenal artery (ISR) taking origin from right (RA), after this it trifurcates, superior and middle polar arteries gives accessory branches to suprarenal renal gland. On the left side, superior suprarenal artery was branch from inferior phrenic artery which was a direct branch of celiac trunk, along with accessory branch from right inferior phrenic artery which was discussed earlier. Inferior suprarenal artery originates from left renal artery.

Key words: suprarenal arterial variations, Inferior phrenic artery, celiac trunk, unusual origin of superior suprarenal artery.

INTRODUCTION:

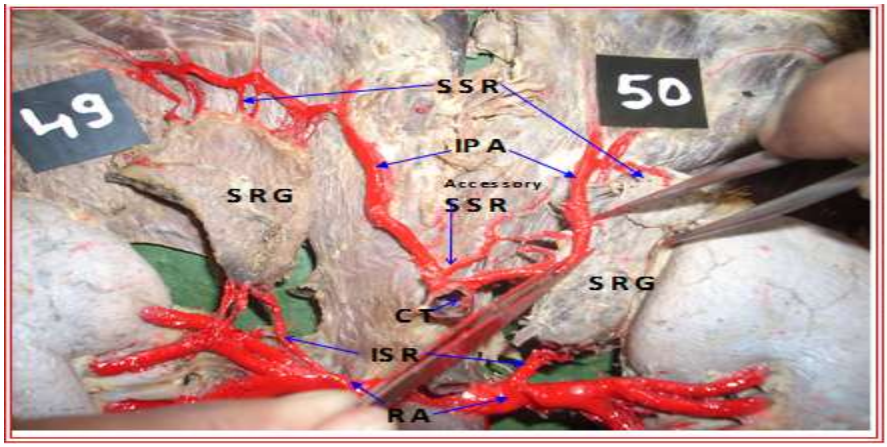
Suprarenal glands are highly vascular and blood flow is equivalent to that of thyroid gland approximately 5ml/min/gm of gland. This is supplied by three arteries namely superior, middle and inferior supra renal artery [(1)]. Superior supra renal artery; arise from inferior phrenic artery , Middle arises from abdominal aorta. Inferior from the renal artery, from main artery or its upper pole branches [(2)]. Merklin. RJ described, in some instances the superior supra renal artery arises directly from celiac trunk [(3)].

RESULTS:

During routine dissection of adult male cadaver in the department of Anatomy, variations in the arterial supply to the supra renal gland were noted.

On the right side, superior supra renal artery originated from inferior phrenic artery which was direct branch from celiac trunk. This inferior phrenic artery gives branch to left supra renal gland; it also gives branches to diaphragm act as accessory inferior phrenic artery. Inferior supra renal artery takes origin from right renal artery, after this it trifurcates, superior and middle polar arteries gives accessory branches to supra renal gland.

On the left side, superior supra renal artery was branch from inferior phrenic artery which was a direct branch of celiac trunk, along with accessory branch from right inferior phrenic artery which was discussed earlier. Inferior supra renal artery originates from left renal artery.



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DISCUSSION:

Sander TW described an account of embryological background of blood supply to supra renal gland which will help to substantiate the reasons for varied blood supply. Blood vessel development occurs by two mechanisms: Vasculogenesis (major vessels) and angiogenesis (remainder of the vascular system). The entire system is guided by growth factors like (VEGF) [4].

Hamilton WJ et al described, the lateral (intermediate) splanchnic arteries is distributed to the structures developed from intermediate cell mass of the supra renal gland. They form irregular series of vessels (rete arteriosus urogenitale). There was a pair in each segment of the body but many of them disappear, and the series is represented in the adult only as the supra renal's, the definitive supra renal arteries became branches of the renal and inferior phrenic thus receiving the original embryonic coordination [5].

Kidneys in early embryonic life were pelvic organs and ascend up in search of better blood supply as ascend they take blood sequentially from middle sacral, common iliac arteries, inferior supra renal artery, middle supra renal and lastly inferior phrenic artery may become renal artery [2].

In present case, right and left superior supra renal artery came from inferior phrenic artery, which was a direct branch of celiac trunk. Thejodhar P et al described, in 6.25% of cases inferior phrenic artery was direct branch from celiac trunk [6]. Grieg HW et al described, inferior phrenic artery originate from celiac trunk in 20.3% of cases [7]. Petrella S et al described, it was originated from celiac trunk in 34.83% cases [8].

In present case, left supra renal gland was supplied by branch from right inferior phrenic artery. Which was supplying along with left superior supra renal artery. We could not able to find reference for this variation.

In present case, middle supra renal arteries were absent both sides; this is explained by middle supra renal artery may become renal artery [2]. Manso JC et al described, the most variable group was the middle supra renal arteries. It appeared in 93% of the cases [9]. Inferior supra renal arteries are considered very important because they supply all or most of the gland. In present case, it takes origin from right renal artery as well as some branches from upper two polar arteries. On left it was from left renal artery. Veena pai et al described, Right inferior supra renal artery originated from common trunk from segmental renal artery. Left was from segmental branch of main renal artery [10].

CONCLUSION:

In recent times, trends of minimal invasive (laparoscopic) surgery, to reduce morbidity and mortality. It is concluded that pattern of supra renal blood supply varies to such an extent that no two are alike. A thorough knowledge of arterial anatomy of supra renal gland is required for surgical interventions of upper abdominal organs to avoid complications.

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