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News Letter

The Challenges of Dealing with and Managing Abdominal Wall Complications in Renal Transplant Recipients

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Abdominal wall complications occur in 3-18.6% ofrenal transplant recipients post operatively [1-5], with the spectrum of complications including surgical site infections (SSI), acute superficial or deep fascial wound dehiscence, slow wound healing and subsequent hernia formation. The known risk factors for abdominal wall complications in renal transplant recipients include the use of immunosuppression combined with underlying medical comorbidities, such as diabetes, obesityanda history of smoking [1,6]. Surgical factors can also predispose to the development of collections including hematomas and lymphoceles which may then contribute to the development of abdominal wall complications [7]. The presence of Infection is also known to impair wound healing, and the susceptibility of transplant recipients to infection is influenced by the intensity of their exposure to pathogens as well as their net state of immunosuppression [8]. It is also possible that a genetic predisposition to surgical site infection [9] can be further unmasked in transplant recipients.

The process of wound healing involves the well described stages of hemostasis, inflammation, proliferation and remodeling, which requires that a complex interplay between cytokines, growth factors and proteases all occur [10]. Although the precise nature of the perturbed alterations in the molecular and cellular pathways in immunosuppressed transplant recipients remains unclear at this point in time.

However it is understood that there is a spectrum of wound healing that occurs in renal transplant recipients in practice, where some patients with risk factors for impaired healing exhibit normal patterns of wound healing whilst other recipients with similar risk factors exhibit significantly delayed healing of the abdominal wall, and/or loss of abdominal wall integrity, leading to dehiscence or hernia formation. Again the precise interplay between all of the known clinical risk factors for the development of wound complications also remains unclear. Understanding these factors is essential in optimizing and tailoring the management of abdominal wall complications for these recipients in clinical practice.

There are a range of management options currently available for abdominal wall issues depending on the type of complication, which include operative, non operative and selected interventional radiological procedures in conjunction with simple or complex wound dressings. However management of these complications is not only an additional burden for each individual recipient, but also increases the costs of managing a transplant recipient from both a healthcare and a societal perspective [11,12].

Surgical site infections range from superficial wound infections to deep, organ specific infections [13]. For more severe cases surgical wash out and debridement along with targeted antimicrobial therapy form the basis of management, with subsequent wound closure achieved by primary or secondary intention. A range of wound dressings including more recently negative pressure wound therapy (NPWT) or VAC dressing have been successfully used inrenal transplant recipients [14]. However more recently there have been reports of adverse outcomes associated with the use of NPWT including infection or severe systemic sepsis including more recently in renal transplant recipients, as reported in our case series. Hence it seems that vigilance is required with the use of NWPT inrenal transplant recipients.

The management of fascial dehiscence includes primary closure of the abdominal fascia and in some cases the use of prosthetic mesh where fascial closure is not possible [15]. In extreme cases with significant loss of tissue from the abdominal wall, wound management can be difficult and may involve multistage repair with debridement, wound packing and in some cases, delayed definitive repair [15]. If a prolonged period of management with wound dressings including NWPT has been required in the setting of an open abdominal wall, consideration needs to be given to other definitive abdominal wall repair options including the use split skin grafts or even on occasion, component separation or tensor fascia lata (TFL) grafts [16]

Incisional hernias affect between 1.1-18% [17,18] of recipients and may occur months to years following renal transplantation [7]. Standard methods of operative repair are employed with prosthetic mesh being required in 60 – 92% of cases [19,20]. The most common complications following repair of incisional hernia are recurrence or infection.

In conclusion management of the spectrum of abdominal wall complications in renal transplant recipients remains an ongoing challenge in transplant units. This requires that particular attention be paid to wound care, the early recognition of wound complications and the medical optimization of recipients. In addition the deployment of a range of tailored surgical interventions depending on the context are also required. However there remain unanswered questions, partly due to the limited amount of data published to date on renal transplant recipients [21]. Moreover, it is important in those who sustain the more severe abdominal wall complications including in particular, tissue loss, who then require prolonged management. Consideration needs to be given to how best to facilitate this type of data now being reported via collaborative research endeavors. Future research is also required into gaining an understanding of the factors that are associated with poor wound healing including the interplay between the immunosuppression and the impact on the local wound environment. In particular the effect on altering the inflammatory response, including the cellular proliferation and remodeling pathways, which will then facilitate a more tailored, targeted approach towards the management of these complex patients.

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