SUPPURATIVE PHLEBITIS OF AN ARM VEIN FROM A "SCALP-VEIN NEEDLE"

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CANNULA-related sepsis is acknowledged to be a major complication of intravenous therapy\(^1\); the risk appears highest with plastic catheters. Catheter-associated sepsis usually responds rapidly to removal of the catheter.\(^1\) In contrast, suppurative phlebitis in which the vein becomes filled with pus is lethal unless treated surgically.\(^2\) Rare except in burned patients,\(^4\) this disastrous complication almost always involves the lower extremity or the central veins in patients without burns, or follows prolonged cannulation with a plastic catheter.\(^2\) In the following case of cancer, associated with candidaemia, sepsis originated from a "scalp-vein needle" in a wrist vein.

CASE SUMMARY

A 23-year-old woman was admitted to the hospital for treatment of locally recurrent mucopidermoid parotid carcinoma. An indurated, non-inflamed tumor mass, 1 by 3 cm, extended into the external auditory canal. The remainder of the physical examination was unremarkable.

The hemocrit was 23 per cent, and the white-cell count 8100, with a normal differential. The remainder of the laboratory tests were within normal limits.

On the first hospital day the patient was given mefloquine, 5 g intravenously, and leucovorin by mouth. Six days later staphylococcal cellulitis involving the entire face and neck developed; intravenous mephalanilin was begun. On the ninth hospital day the white-cell count fell to 900 (with 180 neutrophils per cubic millimeter). For the next 12 days the patient was leukopenic and severely ill, with necrotizing stomatitis, oopharyngeal thrush (Candida albicans), and respiratory distress; however, by the 21st hospital day clinical improvement was evident, coinciding with resolution of the leukopenia.

On the 24th day the patient was restless and had low-grade fever (38.5°C). The white-cell count was 12,100 (including 41 per cent neutrophils and 25 per cent band forms). Inflammation was noted at an infusion site on the right wrist, where a scalp-vein needle had been in place for five days. Culture of the needle tip and blood culture from a separate vein both yielded C. albicans.

DISCUSSION

Scalp-vein needles are probably substantially safer than plastic catheters and strongly recommended for elective intravenous infusions.\(^1\) Although a controlled comparative study has not been performed, the combined data from five prospective studies of scalp-vein needles in the United States\(^8\) indicate associated bacteremia in approximately 0.2 per cent incidence whereas over 20 published studies of plastic catheters have reported rates of sepsis ranging from 0 to 8 per cent.\(^3\)

Three of the five reported cases of sepsis associated with scalp-vein needles,\(^6\) including our own, developed in patients with cancer. Moreover, higher rates of positive needle-tip cultures have been found in patients with neoplasia.\(^5\) We found local inflammation very helpful in calling attention to the infusion site as a source of sepsis; in patients with burns clinical evidence of suppuration is frequently absent.\(^4\) The diagnosis was established by milking of the vein from above toward the infusion site. If this maneuver is nondiagnostic but venous suppuration is strongly suspected, exploratory venotomy is indicated.\(^1\)

Although preferable to plastic catheters in most clinical circumstances, steel needles are not totally without hazard. An acceptable maximum duration of needle placement, analogous to the widely subscribed 48-hour maximum for plastic catheters in peripheral veins,\(^5\) has not

Figure 1. Candida Blastospores and Pseudephycm in Gram-Stained Smear of Pus Expressed from the Puncture Site of a Scalp-vein Needle (× 160).

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been established. When feasible, 48 to 72 hours is most prudent; with few usable veins, the needle should be removed promptly if local inflammation, unexplained fever, or signs of sepsis appear. In such cases the needle tip as well as fluid should be routinely cultured.1 Suppurative phlebitis must be considered when local inflammation or signs of systemic infection persist after needle removal. Patients with cancer or otherwise immunosuppressed may suffer a greater risk of sepsis associated with scalp-vein needles, which can be more severe. In such patients, even greater adherence to asepsis1 and awareness of the increased hazard are imperative.

REFERENCES


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